# SPP-A900

# SERVICE MANUAL

*US Model*

## SPECIFICATIONS

### General

Operating frequency
  900 MHz ISM bands/30 channels
Digital Coding
  ADPCM 32k bps
Dial signal
  Tone, 10 PPS (pulse) selectable
Supplied accessories
  See page 7.

### Handset

Power source
  Rechargeable battery pack BP-T18
Battery life
  Talk time: Approx. 7 hours
  Standby: Approx. 7 days at RING ON mode
  Approx. 30 days at BATT SAVE mode
Dimensions
  Approx. 2 1/4 x 6 1/8 x 1 1/2 inches (w/h/d), antenna excluded
  (approx. 55 x 155 x 37 mm)
  Antenna: 2 1/4 inches (56.4 mm)
Mass
  Approx. 8 oz (approx. 217.4 g), battery included

### Base unit

Power source
  DC 9 V from AC power adaptor
Battery charging time
  Approx. 18 hours
Dimensions
  Approx. 6¾ × 2¼ × 7½ inches (w/h/d)
  antenna excluded
  (approx. 170 × 55 × 188 mm)
  Antenna : Approx. 5¾ inches
  (approx. 143.5 mm)
Mass
  Approx. 1 lb 2 oz (approx. 515.2 g)

### Answering machine

Total recording time
  About 20 minutes, using Incorporated IC
Greeting message
  Up to 1 minute per each
Incoming and Memo message
  Up to 4 minutes per message
Conversation recording
  Up to 10 minutes

Design and specifications are subject to change without notice.

MICROFILM

CORDLESS TELEPHONE

SONY®

## TABLE OF CONTENTS


Specification ····· 1

**1. GENERAL**

Location and Function of Controls ····· 3
Read this first ····· 4
Step 1 : Checking the Package Contents ····· 4
Step 2 : Setting up the Base Unit ····· 4
Step 3 : Preparing the Battery Pack for the Handset ····· 5
Making Calls ····· 6
Receiving Calls ····· 6
Speed Dialing ····· 7
Paging ····· 7
Setting up the Answering Machine ····· 7
Listening to the Messages ····· 9
Screening calls ····· 9
Recording a Telephone Conversation ····· 10
Recording a Memo Message ····· 10
Operating the Answering Machine from the Handset ····· 10
Operating the Answering Machine from a Touch-tone Phone ····· 10
Transferring a Message ····· 11
Mounting the Base Unit on a Wall ····· 12
Carrying the Handset by the Belt clip ····· 12
Resetting the Digital Security Code ····· 12

**2. DISASSEMBLY** ····· 13

**3. TEST MODE**

Base Unit ····· 14
Handset ····· 17

**4. ELECTRICAL ADJUSTMENTS**

Base Unit ····· 19
Handset ····· 21

**5. EXPLANATION OF IC TERMINALS** ····· 23

**6. DIAGRAMS**

6-1. Block Diagram (Base Unit Section) ····· 29
6-2. Block Diagram (Handset Section) ····· 32
6-3. Printed Wiring Boards (Base RF Section) ····· 35
6-4. Schematic Diagram (Base RF Section) ····· 37
6-5. Printed Wiring Boards (Base Unit Section) ····· 41
6-6. Schematic Diagram (Base Unit Section) ····· 45
6-7. Printed Wiring Boards (Handset Section) ····· 49
6-8. Schematic Diagram (Handset Section) ····· 53

**7. EXPLODED VIEWS**

7-1. Base Unit Section ····· 58
7-2. Handset Section ····· 59

**8. ELECTRICAL PARTS LIST** ····· 60


**Flexible Circuit Board Repairing**

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

**Notes on chip component replacement**

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

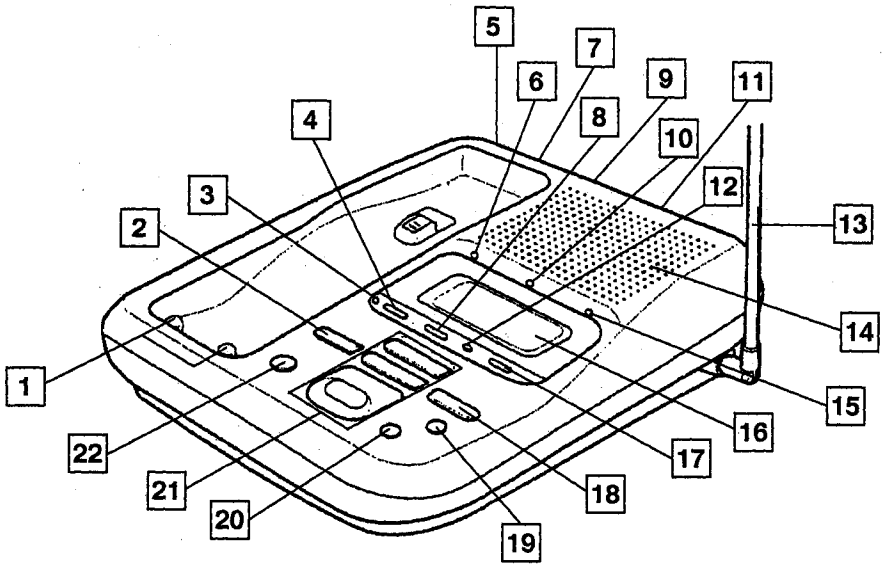
**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

# SECTION 1
# GENERAL

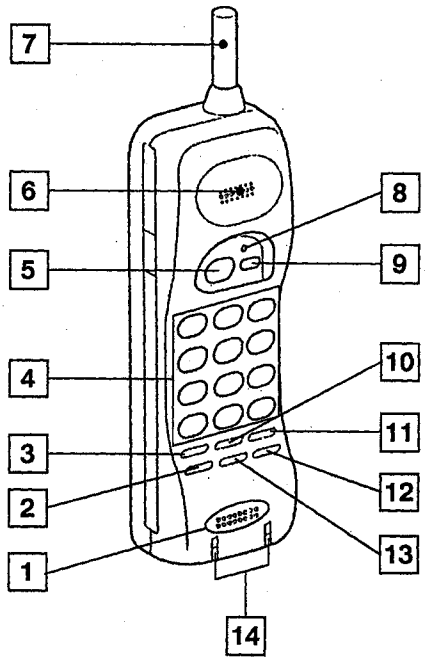
## LOCATION AND FUNCTION OF CONTROLS

### BASE UNIT




1. Charging terminals
2. SLOW/REPEAT button
3. ANSWER lamp
4. ANSWER button
5. LINE (telephone) jack
6. CHARGE lamp
7. DC IN 9V jack
8. TRANSFER button
9. DIAL MODE switch
   Selects pulse or tone
10. LINE lamp
11. AUDIBLE INDICATOR switch
12. RING button
13. Antenna
14. Speaker
15. POWER lamp
16. Display
17. ERASE button
18. QUICK/SKIP button
19. VOL + button
20. VOL − button
21. PLAY/STOP buttons
    MAILBOX 1 button
    MAILBOX 2 button
    MAILBOX 3 button
22. PAGE button

### HANDSET




1. Microphone
2. SPEED DIAL/PGM button
3. CHANNEL button
4. Dialing keys
5. TALK button
6. Speaker
7. Antenna
8. TALK/BATT lamp
9. FLASH button
10. VOL button
11. MUTE button
12. CONV REC/MEMO button
13. PAUSE button
14. Charging terminals

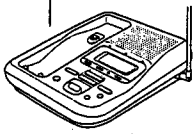
This section is extracted from instruction manual.



# Read this first

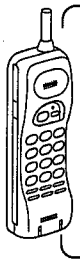
Before you use your phone, you must set it up. Here's a quick way to set up your phone: Step 1, 2 and 3.

**Step 1** (page 7)
First, unpack the phone and the supplied accessories.



**Step 2** (page 8 to 10)
Next, you need to do three things to set up the base unit, including finding the best location for the base unit.

Base unit



**Step 3** (page 11 to 13)
Finally, you need to insert the battery pack into the handset and place the handset on the base unit to charge the battery pack.

Handset

***That's it!***

### About the cordless telephone

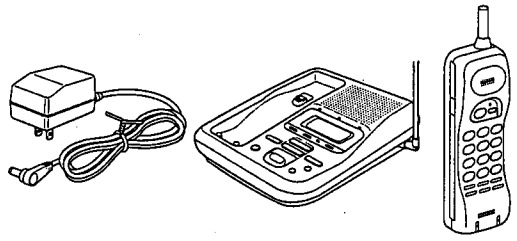
The first time you charge the battery pack, a random security code is automatically assigned between the base unit and the handset.
Only a handset which has this unique security code can make calls through the base unit. This system prevents the possibility of other cordless telephone handsets making calls through your base unit.
You can also reset the security code (see page 40).



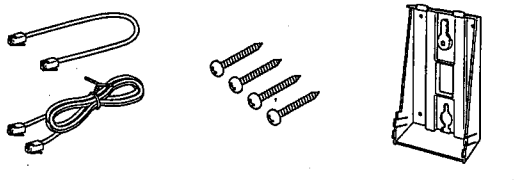
# Step 1

## Checking the package contents

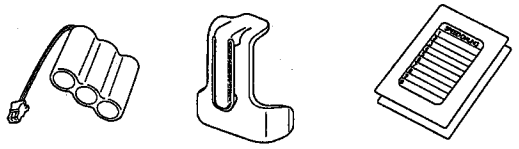
Make sure you have received the following items in the package.
If anything is missing, contact your local Sony dealer.



AC power adaptor (AC-T42) | Base unit | Handset



Telephone line cords (2) | Screws (4) | Wall bracket for base unit



Rechargeable battery pack (BP-T18) | Belt clip | Directories (2)





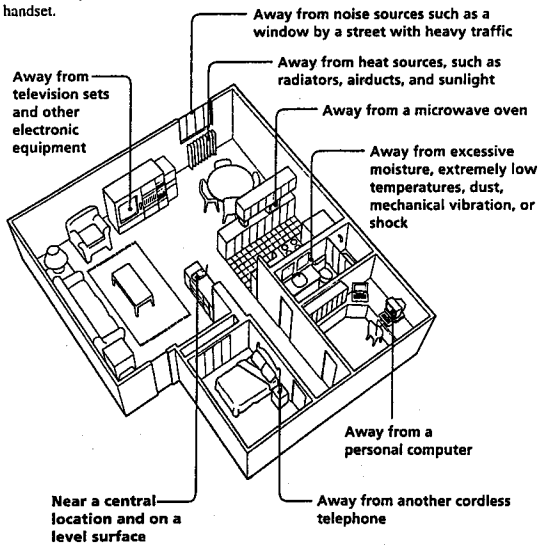
# Step 2

## Setting up the base unit

Do the following steps:
- Choose the best location
- Connect the base unit
- Choose the dialing mode

### Choose the best location

Where you place the base unit affects the reception quality of the handset.

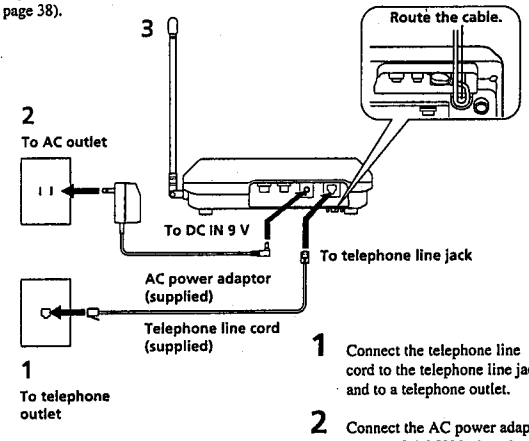

Away from noise sources such as a window by a street with heavy traffic
Away from heat sources, such as radiators, airducts, and sunlight
Away from television sets and other electronic equipment
Away from a microwave oven
Away from excessive moisture, extremely low temperatures, dust, mechanical vibration, or shock
Away from a personal computer
Near a central location and on a level surface
Away from another cordless telephone

**Caution: The cordless telephone operates at a frequency that may cause interference to nearby TVs and VCRs; the base unit should not be placed near or on top of a TV or VCR; and, if interference is experienced, moving the cordless telephone farther away from the TV or VCR will often reduce or eliminate the interference.**



### Connect the base unit

If you want to hang the base unit on a wall, mount the unit first (see page 38).




**1** Connect the telephone line cord to the telephone line jack and to a telephone outlet.

**2** Connect the AC power adaptor to the DC IN 9V jack and to an AC outlet.

**3** Raise the antenna vertically.

continued

## Step 2 : Setting up the base unit (continued)

**Notes**
- Use only the supplied AC-T42 AC power adaptor. Do not use any other AC power adaptor.
- Connect the AC power adaptor to a continuous power supply.
- Place the base unit close to the AC outlet so that you can unplug the AC power adaptor easily.

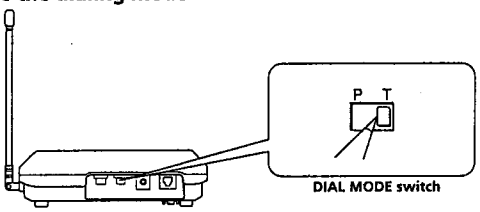
**Tips**
- If your telephone outlet isn't modular, contact your telephone service company for assistance.
- If you have two phone lines on a single jack with the first phone line connected to center pair of wires, and need to connect the second phone line (outer pair of wires), contact your telephone company for rewiring.

Polarity of the plug

Modular

Center pair

### Choose the dialing mode




For the telephone to work properly, select an appropriate dialing mode (tone or pulse).
Depending on your dialing system, set the DIAL MODE switch as follows.

| If your dialing system is | Set the switch to |
|---|---|
| Tone | T |
| Pulse | P |

**If you aren't sure of your dialing system**
Make a trial call with the DIAL MODE switch set to T.
If the call connects, leave the switch as it is; otherwise, set to P.

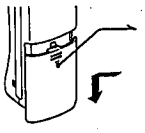


# Step 3

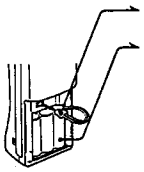
## Preparing the battery pack for the handset

Insert the battery pack into the handset, then place the handset on the base unit.

### Insert the battery pack

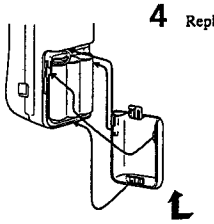


1 Slide open the battery compartment lid of the handset.



2 Connect the cord of the battery pack correctly.

3 Insert the battery pack into the battery compartment.



4 Replace the battery compartment lid.

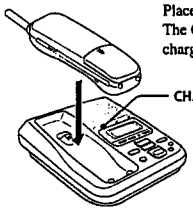
continued





## Step 3 : Preparing the battery pack for the handset (continued)

### Charge the battery pack




Place the handset on the base unit.
The CHARGE lamp lights up. It takes about 18 hours to charge the battery pack.

**Battery duration**
A fully charged battery pack lasts for about:
- 7 hours when you use the handset continuously.
- 7 days when the handset is in standby mode.

You can save the handset battery power by setting the RING ON/ BATT SAVE switch to BATT SAVE. The handset won't ring (see page 17).

**Notes**
- The battery pack will gradually discharge over a long period of time, even if not in use.
- The CHARGE lamp of the base unit is always lighted when the handset is placed on the base unit, even if the battery pack has been fully charged.

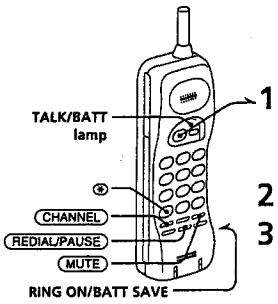
**When to charge the battery pack**
As long as the handset is placed on the base unit after each call, the battery pack will be recharged continuously.

**If the handset battery becomes weak**
You will hear a beep every three seconds during the conversation.
The call will be disconnected in one minute.

**When to purchase a new battery pack**
If the battery lasts only a few minutes even after 18 hours of charging, the usable life of the battery has expired and needs replacement.
Contact your local Sony authorized dealer or service center, and ask for Sony BP-T18 rechargeable battery pack.

**Note**
If the handset battery is completely discharged, the digital security code will be erased and all programmed numbers will be lost from memory.
In this case, first recharge the battery for more than 18 hours, then store the numbers into the memory for speed dialing again (see page 18). The digital security code will be automatically set when you replace the handset onto the base unit.

# Making calls




1 Press (TALK) and wait until the TALK/BATT lamp lights up in green. You then hear a dial tone. If you hear beeps, move closer to the base unit.

2 Dial the phone number.

3 When you're done talking, press (TALK), or replace the handset on the base unit.
The TALK/BATT lamp goes off.

## Additional tasks

| To | Do this |
|---|---|
| Select better channel (only on the handset) | Press (CHANNEL). |
| Put a call on mute | Press (MUTE). The TALK/BATT lamp flashes slowly in green. Press the button again to resume the conversation. |
| Switch to tone dialing temporarily | Press TONE ⊛ after you're connected. The line will remain in tone dialing until disconnected. |

### If the handset battery becomes weak during a call

The handset will beep every three seconds and the TALK/BATT lamp flashes in red. The call will be disconnected after one minute. Replace the handset on the base unit to charge.



## Redialing

1 Press (TALK) and wait until the TALK/BATT lamp lights up in green.

2 Press (REDIAL/PAUSE) to redial the number last dialed.

**Note**

*If the number exceeds 32 digits or there is no previous number dialed, the beeps will alert you that the number can't be dialed.*

### To erase the last phone number dialed

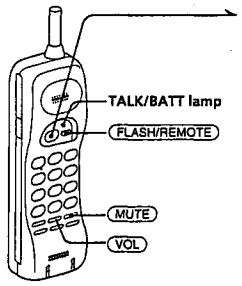
While the telephone isn't in use, press (REDIAL/PAUSE) twice.
The number will be erased from the memory, and you'll hear a long confirmation beep.

**Note**

Make sure that the RING ON/BATT SAVE switch is set to RING ON for this operation.



# Receiving calls




1 When you hear the phone ring, press (TALK) (or any dialing key including ⊛ and #).
The TALK/BATT lamp lights up in green.

2 When you're done talking, press (TALK), or replace the handset on the base unit.
The TALK/BATT lamp goes off.

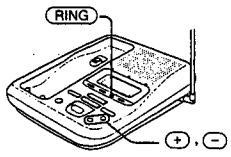
## Additional tasks

| To | Do this |
|---|---|
| Put a call on mute | Press (MUTE). The TALK/BATT lamp flashes slowly in green. Press the button again to resume the conversation. |
| Switch to another call* ("call waiting" service) | Press (FLASH/REMOTE). Press the button again to get back to the first caller. |
| Adjust the speaker volume of incoming calls | Press (VOL). High or low volume can be selected alternately. |

* You need to subscribe to this service from your telephone company.



## Adjusting the ringer volume



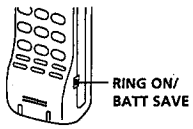

1 Press (RING) so that RING VOL indication flashes and RING TIME indication lights up in the display window.

2 Press + or − to select "HIGH", "LOW", or "OFF".

3 Press (RING) twice.
You will hear a confirmation beep by each pressing.

**Tip**

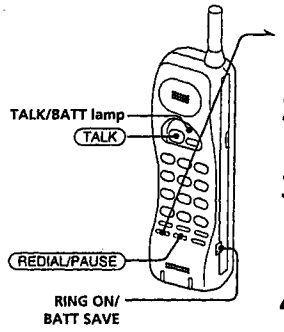
If you can hear the base phone ring on incoming calls, you can make the handset not ring by setting the RING ON/BATT SAVE switch to BATT SAVE. You can still make or receive calls by pressing (TALK).



# Speed dialing

You can dial with a touch of a few keys by storing phone number on a dialing key.

## Storing phone numbers




1 Press SPEED DIAL/PGM.
The TALK/BATT lamp flashes in green.

2 Press one of the dialing keys (① to ⑨) for the phone number to be stored.

3 Enter the phone number you want to store.
You can enter up to 16 digits, including a tone and a pause, each of which is counted as one digit.

4 Press SPEED DIAL/PGM.
You hear a long confirmation beep, and the number is stored.
The TALK/BATT lamp goes off.

**Notes**
- To store the previous number dialed, press REDIAL/PAUSE directly after step 2. Then go to step 4. If the number exceeds 16 digits or there is no previous number dialed, five short error beeps sound and storing is canceled.
- Do not allow more than 20 seconds to elapse between each step of the procedure.
- Make sure that RING ON/BATT SAVE switch is set to RING ON.

*Tips*
- If you enter a wrong number, start from the beginning.
- You can't receive calls while you're storing numbers.

**To store a number to be dialed via Private Branch Exchange (PBX)**
Before entering a phone number in Step 3 on the previous page, do as follows:

1 Enter the outside line access digit (e.g. 9).

2 Press REDIAL/PAUSE to enter a pause.

**To change a stored number**
Store a new number, as described on the previous page.

## Making calls with speed dialing

1 Press TALK and wait until the TALK/BATT lamp lights up in green.

2 Press SPEED DIAL/PGM.

3 Enter the desired speed dialing number (① to ⑨).
The phone number stored in the speed dialing number of the handset will be dialed.



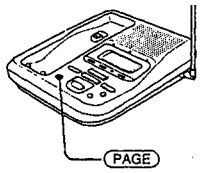






# Paging

You can page from the base unit to the handset.




Press PAGE.
The paging signal is heard from the handset.
When you press PAGE for a moment, the paging signal sounds for one second.
Or the paging signal sounds continuously as long as you keep pressing PAGE.

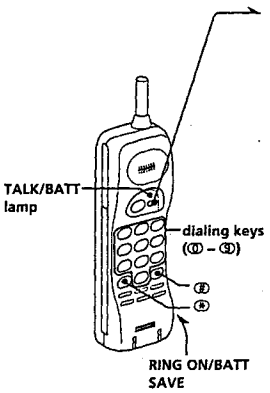
**Notes**
- If a call comes in during paging, paging is canceled.
- You cannot page when the handset is engaged in conversation.
- If the RING ON/BATT SAVE switch on the handset is set to BATT SAVE, the paging signal doesn't ring.



# Setting up the answering machine

As you proceed the operation, you will hear the operation guidance.

## Setting the time and the day of the week




1 Press FLASH/REMOTE.
The TALK/BATT lamp lights up in red.
The day of the week, time and new message number are announced.

2 Press ⑧.

3 Set the day of the week using the dialing keys.
Sunday – ①, Monday – ②,
Tuesday – ③, Wednesday – ④,
Thursday – ⑤, Friday – ⑥,
Saturday – ⑦

4 Set the hour using the dialing keys (⓪① ... ①②).
To set 3 o'clock, press ⓪③.

5 Set the minutes using the dialing keys (⓪⓪ ... ⑤⑨).
To set 8 minutes, press ⓪⑧.

6 Set the AM or PM.
To set AM, press ⑧.
To set PM, press ⑨.
A long confirmation beep sounds, and the day of the week and time are announced. The clock starts.

7 Press FLASH/REMOTE.
The TALK/BATT lamp goes off.

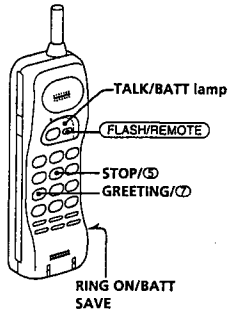
**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If two minutes have passed during operation, the setting is canceled. Try again from the beginning.
- During the power interruption, the clock stops. So if this happens, reset the time.

**Tip**
The clock has started when the power cord was first connected.

continued

## Recording the greeting

You can record your own greeting for the "normal" and "annoucement only" mode.




1 Press (FLASH/REMOTE). The TALK/BATT lamp lights up in red.

2 Press GREETING/⑦. You will hear an operation guidance from the handset.

3 Speak into the handset. You can record up to one minute.

4 To stop recording, press STOP/⑤. A long confirmation beep sounds, and your greeting will be played back.

5 Press (FLASH/REMOTE). The TALK/BATT lamp goes off.

**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If the greeting is shorter than 2 seconds, five short error beeps sound and the greeting is not recorded.
- This answering machine has also prerecorded greeting. You can use following greeting, if you don't record your own greeting.

**Tip**
To record the greeting from a touch-tone phone, see page 34.

### Prerecorded greeting

Normal mode: "Hello, I'm unable to answer your call right now. Please leave your name, number and message after the tone."

ANN ONLY mode: "Hello, I'm unable to answer your call right now. Please call again, thank you."

**Tip**
If you want to record your own "announcement only" greeting, do the above sequence after setting the AUDIBLE ON/OFF - ANN ONLY switch to ANN ONLY (see page 24). Otherwise the "normal" greeting will be recorded.

### To change the greeting

Do in the same way as described on the previous page. The new greeting replaces the old one.

### To erase the greeting

1 Press (FLASH/REMOTE).
2 Press ERASE/⑨.
3 Press GREETING/⑦.
4 Press (FLASH/REMOTE) again.

## Selecting the ring time (on the base unit only)

You can select the number of rings before the phone answers to take a message.
There are three modes, 3, 5, and TS (Toll saver).

1 Press (RING) twice so that RING TIME indication flashes in the display window.

2 Press (+) or (−) to select "3 times", "5 times", or "Toll saver".
To answer after 3 rings, select "3 times".
To answer after 5 rings, select "5 times".
Select "Toll saver" to answer after 3 times when there is a new message and after 5 times when there is no new message.

3 Press (RING).
You will hear a long confirmation beep.

**Note**
Do not allow more than 20 seconds to elapse between each step of the procedure.



continued



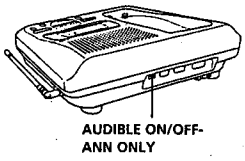




## Selecting the answering mode

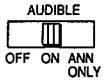
You can set the answering machine to record incoming messages (Normal mode), or just to make an announcement without recording messages (Announcement only mode).

In the normal mode, you also have the option of having a beep to tell you if you have received any new incoming messages.

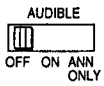



### To record incoming messages

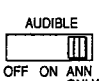
When you want to have beeps (audible indicator)



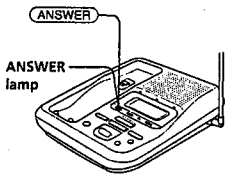

When you do not want to have beeps




**Announcement only**
The answering machine does not record incoming messages.




## Turning on the answering machine




Press (ANSWER) on the base unit. The ANSWER lamp lights up, and you will hear the answering greeting.

**Note**
If the remaining recording time becomes less than 4 minutes and 30 seconds, the remaining recording time is announced.

**Tip**
The answering machine will automatically answer a call after 10 rings even if the answering function is off.
The answering function will remain on for all subsequent calls.

### When a caller calls

The caller can choose one of the two ways to leave a message:
- Waits until the greeting finishes, then starts recording a message. (By default, the message goes into box 1.)
- Selects a box by pressing ✱① (box 1), ✱② (box 2), or ✱③ (box 3) while the caller hears the greeting. The greeting message stops and the caller hears a beep, then recording can start.

**Notes**
- If 4 minutes have passed while recording the incoming message, the line is disconnected automatically.
- If the message is shorter than 2 seconds, the message is not recorded.

### To turn off the answering machine

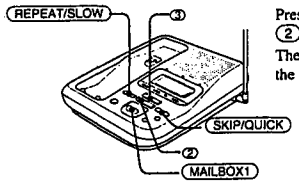
Press (ANSWER).
The answering machine is turned off and the ANSWER lamp goes off.

**Tip**
You can turn the answering machine on/off using the handset too (see page 32).
To turn the answering machine on/off from a touch-tone phone, see page 34.

# Listening to the messages

If there are new messages, the ANSWER lamp, the mailbox indicator and the number of new messages flash.
You will hear beeps in the AUDIBLE ON mode.

## To play back the messages




Press the mailbox button ((MAILBOX1), (2) or (3)).
The unit plays back from the first new message.

**Note**
If a call comes in during playback, the playback stops.

**Tip**
You can also listen to the messages by using the handset (see page 32).
To play back the message from a touch-tone phone, see page 34.

### To skip the current message
Press (SKIP/QUICK) during playback.

### To repeat the current message
Press (REPEAT/SLOW) during playback.
If you press the button again within two seconds after the current message has started, you go to the previous message.

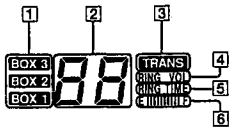
### To stop playback
Press one of the mailbox button ((MAILBOX1), (2) or (3)).

### To play back quickly
Keep pressing (SKIP/QUICK) during playback.
Release (SKIP/QUICK) to return to normal playback.

### To play back slowly
Keep pressing (REPEAT/SLOW) during playback.
Release (REPEAT/SLOW) to return to normal playback.



### Display
The display shows the answering machine operation.




1 Lights when there are messages recorded. Also lights when the messages in the mailbox are played back. Flashes when there are new messages recorded.

2 The number of new messages recorded flashes. "A" appears in the announcement only mode. "FL" appears when there is no space to record more messages. "P" appears when the power is turned on.

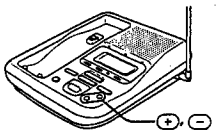
3 Lights when the transfer function is on.

4 Flashes during ring volume is adjusted. Lights during ring time is set.

5 Flashes during ring time is set. Lights during ringer volume is adjusted.

6 Indicates the available memory capacity, from E (Empty) to F (Full), for recording. The bars increase as the free memory decreases.

## Adjusting the speaker volume




To increase the speaker volume, press (+).
To reduce the speaker volume, press (−).

**Note**
If the volume level becomes maximum or minimum, three short beeps sound.

**Tip**
There are 15 steps for volume level and when you press the volume button, the level will be indicated in the display window for one second.

continued

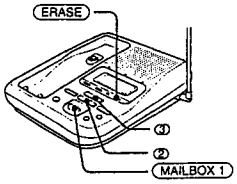






## Erasing the messages

### To erase all messages in a mailbox




1 Press and hold (ERASE).

2 Press the mailbox number ((MAILBOX1), (2) or (3)) you want to erase.
A long confirmation beep sounds and all messages in the mailbox selected are erased.

### Operating on the handset

1 Press (FLASH/REMOTE).
2 Press ERASE/③.
3 Press the mailbox number (BOX1/①, BOX2/② or BOX3/③) you want to erase. A long confirmation beep sounds and all messages in the mailbox selected are erased.
4 Press (FLASH/REMOTE).

**Tip**
If there are messages which have not been played back yet, you will hear five short error beeps and the guidance.

### To erase individual message in a mailbox

During playing back the message you want to erase, press (ERASE).
A long confirmation beep sounds and the message is erased.

**Tip**
You can also erase individual message by using the handset (see page 32).
To erase individual message from a touch-tone phone, see page 34.



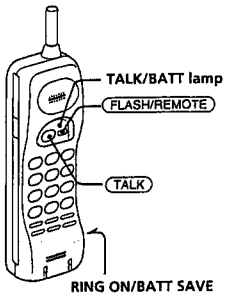
# Screening calls

You can screen calls by leaving the answering machine on while you are at home. When a call is answered, you can hear the message being recorded through the base unit or the handset. The caller cannot hear the sound from this side during recording. You can then decide either to continue recording or to switch to conversation.

### On the base unit
When a call is answered, the base unit's speaker will be turned on automatically. You can listen to the caller's message during recording.

**Notes**
- If the speaker volume is set to minimum, you cannot screen the calls.
- The greeting cannot be heard from the speaker of the base unit while it is being played.

### On the handset




When a call is answered the TALK/BATT lamp flashes in red and green mutually.
To screen a call, press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

To talk to the caller, press (TALK).
The recording stops.

**Note**
Make sure that the RING ON/BATT SAVE switch is set to RING ON.

# Recording a telephone conversation

When you are making a call on the handset, you can record a telephone conversation.

1 During the phone conversation, press (CONV REC/MEMO).
The TALK/BATT lamp lights up in red.
The conversation recording starts.
The conversation is recorded in mailbox 1.

2 To stop recording, press (CONV REC/MEMO).
The TALK/BATT lamp lights up in green.

**Notes**
- If 10 minutes have passed or when there is no space to record more messages during recording, the conversation recording will automatically stop and a beep announces you that the recording is stopped. Please be careful that the TALK/BATT lamp doesn't change when the recording stopped automatically.
- If the recording is shorter than two seconds, the recording is canceled.

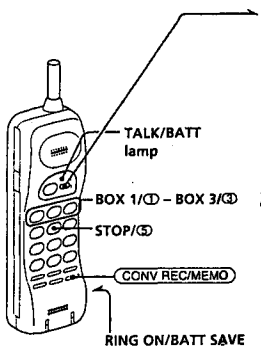
### To listen to the recorded conversation

You can listen to the recorded conversation in the same way as for the incoming messages (see page 26).



# Recording a memo message

You can leave messages to other users of the unit.




1 Press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

2 Press (CONV REC/MEMO).

3 Press a box key BOX1/①, BOX2/② or BOX3/③ to which you want to leave the message.

4 Speak into the handset to record your message.

5 Press STOP/⑤ to stop recording.

6 Press (FLASH/REMOTE).
The TALK/BATT lamp goes off.

**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If the recording is shorter than two seconds, the recording is canceled.
- If a call comes in during recording, the recording is stopped automatically.
- If four minutes have passed or when there is no space to record more messages, the recording will automatically stop.

### To listen to the recorded memo message

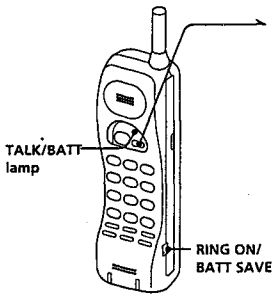
You can listen to the recorded memo message in the same way as for the incoming messages (see page 26).





# Operating the answering machine from the handset

Using the handset, you can operate the answering machine.




1 Press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

2 Press the keys to the desired control codes within 20 seconds.

3 When you finish, press (FLASH/REMOTE) again.
The TALK/BATT lamp goes off.

**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If a call comes in during remote operation, the remote is canceled.

### Table of control codes

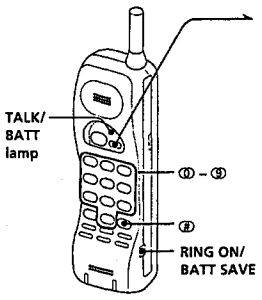
| To | Key | Notes |
|---|---|---|
| Play back messages in mailbox 1 | ① | Played back from the first new message |
| Play back messages in mailbox 2 | ② | Played back from the first new message |
| Play back messages in mailbox 3 | ③ | Played back from the first new message |
| Repeat current message | ④ | Press during playback. To repeat the previous message press within two seconds after the current message starts. |
| Stop operation | ⑤ | — |
| Skip current message | ⑥ | Press during playback. |
| Record greeting | ⑦ | See page 22. |
| Record transfer message | ⑧ | See page 36. |
| Erase messages | ⑨+ | See pages 23, 28, 36. |
| Erase individual message | ⑨ | Press during playback. |
| Turn on answering machine | ⑩ | — |
| Set time and day of the week | ⑥ ... ⑥ or ⑨ | See page 21. |
| Turn off answering machine | ⑨⑩ | — |
| Set security code | ⑨ ... ⑨ | See page 33. |
| Record memo message | (CONV REC/MEMO) | See page 31. |
| Set transfer destination number | (SPEED DIAL/PGM) | See page 35. |



# Operating the answering machine from a touch-tone phone

By setting your security code, you can operate the answering machine from a touch-tone phone while you are away from your home.

### Setting your security code




1 Press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

2 Press #.

3 Press any two digits for security code (①① – ⑨⑨).

4 Press # again.
A long confirmation beep sounds.

5 Press (FLASH/REMOTE) again.
The TALK/BATT lamp goes off.

**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If two minutes have passed during setting, the setting is canceled.

### If the ring time is set to "Toll-saver"

If any new messages are recorded, the answering machine will answer after three rings. If no new message is recorded, it will answer after five rings.
When you call from a touch-tone phone and hear more than three rings, you will know that there is no new message and you can then hang up, saving you the cost of the call (see page 23).

continued

## Operating the answering machine from a touch-tone phone

1 Call your phone from a touch-tone phone.

2 When you hear the greeting, press #, and your security code.
You will hear the announcement of the day of the week, time, and message number.

3 Press following keys for the desired operation command.

4 When you finish, disconnect the line.

**Notes**
- Press # and security code within two seconds.
- If you enter wrong security codes three times, the line is disconnected.
- If you did not turn on the answering machine, your phone will pick up after 10 rings.

### Table of control codes

| To | Key | Notes |
|---|---|---|
| Play back messages in mailbox 1 | #1 | Played back from the first new message |
| Play back messages in mailbox 2 | #2 | Played back from the first new message |
| Play back messages in mailbox 3 | #3 | Played back from the first new message |
| Repeat current message | #4 | Press during playback. To repeat the previous message press within two seconds after the current message starts. |
| Stop operation | #5 | — |
| Skip current message | #6 | Press during playback. |
| Record greeting | *7 | — |
| Record transfer message | *8 | — |
| Turn on/off transferring | #8 | Switches on or off alternately. |
| Erase individual message | #9 | Press during playback. |
| Turn on answering machine | *0 | — |
| Turn off answering machine | #0 | — |

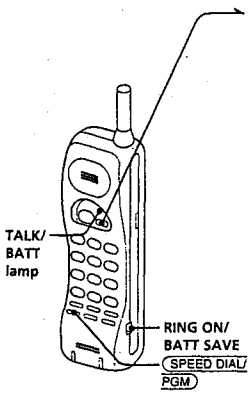
**Note**
Don't elapse two seconds between each digit of control code.



# Transferring a message

After recording each incoming call, the unit transfers the calls to a stored destination number automatically and notifies that there is a new incoming message.
To use this function, you need to store the phone number.

## Storing the transfer destination number




1 Press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

2 Press (SPEED DIAL/PGM).

3 Enter the phone number you want to transfer.
You can enter up to 32 digits including a tone, and a pause, each of which is counted as one digit.

4 Press (SPEED DIAL/PGM).
A long confirmation beep sounds and the destination number is stored.

5 Press (FLASH/REMOTE).
The TALK/BATT lamp goes off.

**Notes**
- Make sure that the RING ON/BATT SAVE switch is set to RING ON.
- If two minutes have passed during operation, the setting is canceled. Try again from the beginning.



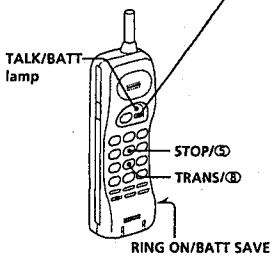
continued





## Recording the transfer message

When you want to inform the person who answers on the registered phone number that this call is to notify an incoming message, record the transfer message.




1 Press (FLASH/REMOTE).
The TALK/BATT lamp lights up in red.

2 Press TRANS/8.

3 Speak into the handset to record your transfer message.
You can record up to one minute.

4 To stop recording, press STOP/5.
A long confirmation beep sounds, and your transfer message will be played back.

5 Press (FLASH/REMOTE).
The TALK/BATT lamp goes off.

**Notes**
- Make sure that RING ON/BATT SAVE switch is set to RING ON.
- If the transfer message is shorter than two seconds, five short error beeps sound and the transfer message is not recorded.
- There is no prerecorded message.

**Tip**
To record the transfer message from a touch-tone phone, see page 34.

### To change the transfer message

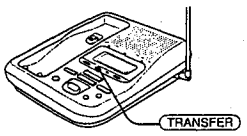
Do in the same way as described above. The new transfer message replaces the old one.

### To erase the transfer message

1 Press (FLASH/REMOTE).
2 Press ERASE/9.
3 Press TRANS/8.
4 Press (FLASH/REMOTE) again.



## Turning on the transfer function




Press (TRANSFER).
The transfer function is turned on and the TRANS indication appears in the display window.
You will hear the destination number and transfer message if recorded.

### To turn off the transfer function

Press (TRANSFER).
The transfer function is turned off and the TRANS indication goes off.

**Tip**
To turn the transfer function on/off from a touch-tone phone, see page 34.

## Notifying you of new message (message transfer)

The unit starts transferring the incoming message 10 seconds after the message is recorded. To pick up the new message, you need to set your security code (see page 33).

1 If you answer this call, you hear a transfer message for one minute, if recorded.

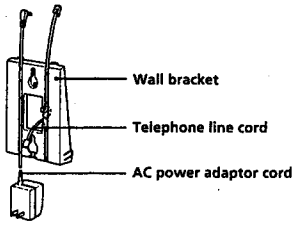
2 When you hear the transfer message, press # and your security code.

3 Press the control codes (#1, #2 or #3) to pick up the new message (see page 34).

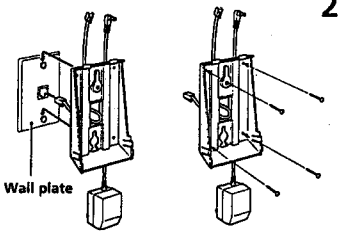
**Notes**
- If a transfer message is not recorded, the unit does not play back a transfer message.
- If you answer the call while the incoming message is recorded, the message is not notified.
- If the unit cannot connect the registered phone number, it tries two more times with 15 minutes intervals. However, the unit stops trying when:
  - you operate the base unit during the interval time.
  - you press (TALK) or (FLASH/REMOTE) of the handset during the interval time.
- If you want to cancel transferring during the message is transferred, press (TRANSFER).
- Don't elapse two seconds between each digit of your security code and control code.

**Tip**
The memo messages and conversation recordings are not transferred.

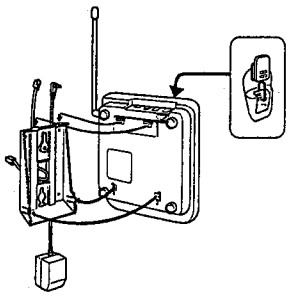
# Mounting the base unit on a wall




1 Attach the AC power adaptor cord and the telephone line cord to the wall bracket. Use the shorter cord for mounting.




2 Hook the wall bracket to the wall plate, and plug the telephone line cord into the telephone outlet.
Instead of hooking to the wall plate, you can mount the wall bracket directly using the four supplied screws.



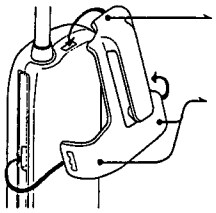
3 Insert the upper tabs first, then press down the base unit so that the lower tabs on the bracket go into the base unit. Then, raise the antenna vertically and attach the hang-up tab upside down.



# Carrying the handset by the belt clip

You can hang the handset on the belt by attaching the belt clip to the handset.

## Attaching the belt clip

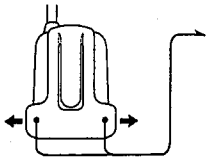


1 Insert the upper tab of the belt clip into the hole on the top of the handset.

2 Press the belt clip to the handset. Make sure that the side tabs click and go into the holes on the sides of the handset.

**Note**
To prevent the handset from dropping, make sure that each tab is completely inserted.

## Detaching the belt clip



While pressing the back of the belt clip, pull the side one by one until the tabs come off from the holes.

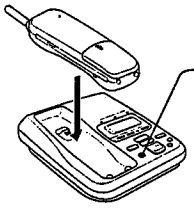
**Note**
Remove the belt clip carefully to avoid breaking your finger nails.





# Resetting the digital security code

Since a random security code is automatically assigned between the base unit and the handset when you charge the battery pack for the first time, you normally do not need to reset the security code. However, in the unlikely event that you suspect that another cordless phone uses the same security code, you can manually change the code as follows:



1 Replace the handset on the base unit.

2 Press (PAGE).

3 Lift the handset for more than one second. Then replace the handset on the base unit and keep it for more than three seconds to complete the code change.

**Note**
If the battery pack in the handset is completely discharged, or is removed from the handset for more than several seconds, the digital security code stored will be lost. If this happens, charge the battery pack, and a new security code will be automatically assigned.

**Tip**
This procedure will change the code in both the base unit and the handset. The code can be changed as often as desired.

# Notes on power sources

### On battery pack

- Store the battery pack at a temperature between 5°C (41°F) and 35°C (95°F) for best performance.
- If you do not use the handset for a long period of time, remove the battery pack.

### On power failure

- During a power interruption, the base unit does not operate, and a phone conversation cannot be made on the handset.

**RECYCLING NICKEL-CADMIUM BATTERIES**

**NICKEL-CADMIUM BATTERY. MUST BE DISPOSED OF PROPERLY.**

**Ni-Cd**

Nickel-Cadmium batteries are recyclable. You can help preserve our environment by returning your unwanted batteries to your nearest Sony Service Center or Factory Service Center for collection, recycling or proper disposal.
**Note:** In some areas the disposal of nickel-cadmium batteries in household or business trash may be prohibited.
For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
**Caution:** Do not handle damaged or leaking Nickel-Cadmium batteries.

# Maintenance

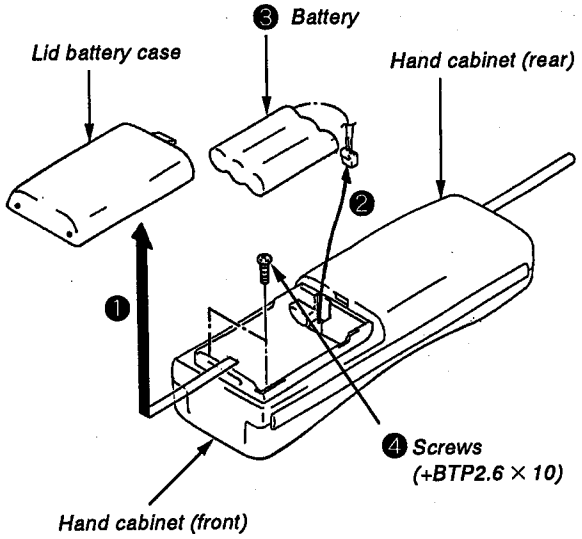
- Clean the cabinets with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine as they may damage the finish of the cabinet.
- If the terminals (metal parts on the base unit and the handset) are soiled, wipe them with a soft cloth or paper.

If you have any questions or problems concerning your phone, please consult your nearest Sony dealer.

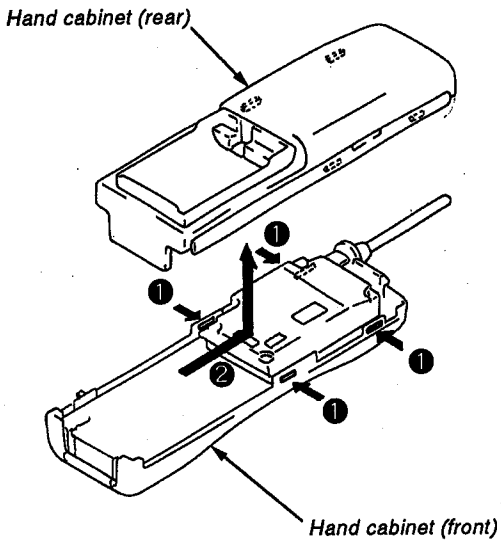
# SECTION 2
# DISASSEMBLY

**Note :** Follow the disassembly procedure in the numerical order given.

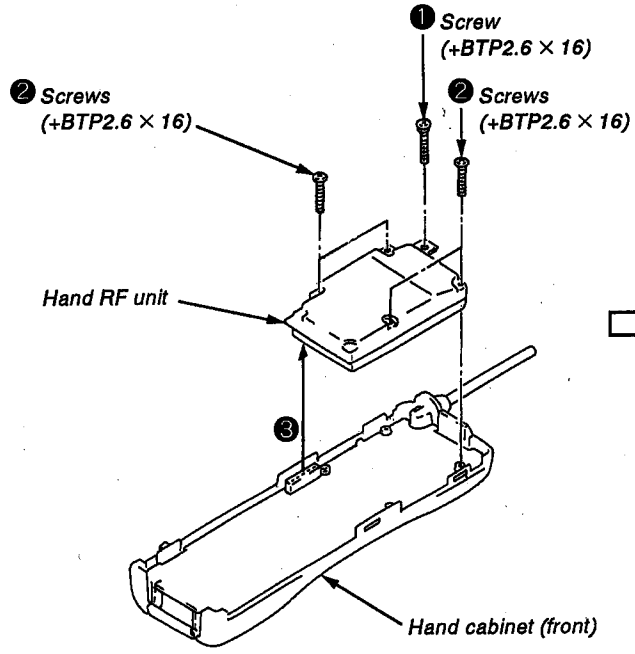
**[BATTERY]**



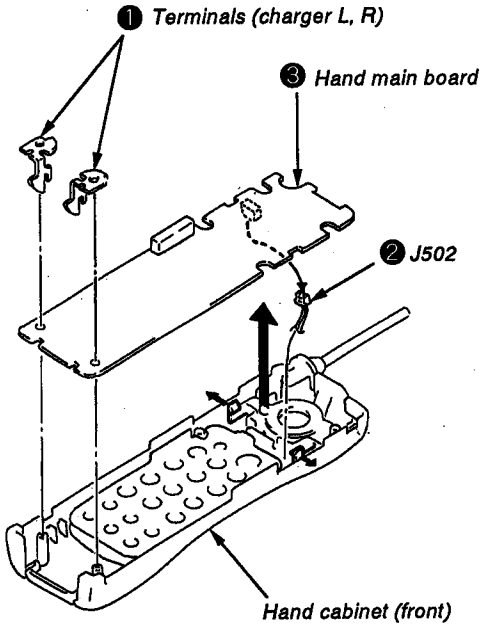

**[HAND CABINET (REAR)]**




**[HAND RF UNIT]**




**[HAND MAIN BOARD]**



# SECTION 3
# TEST MODE

## BASE UNIT

### RF Test Mode

#### ⟨Setting the Test Mode⟩

1. Set the [DIAL MODE] switch to P (PULSE) side.
2. Reset power ON while holding down both the [MAILBOX 1] and [ANSWER] keys, and DSP test mode will be set after about 1.5 seconds. (Check tone is heard.) The 7 segment LED displays "1".

#### ⟨Canceling the Test Mode⟩

Cancel the test mode by executing any of the following :

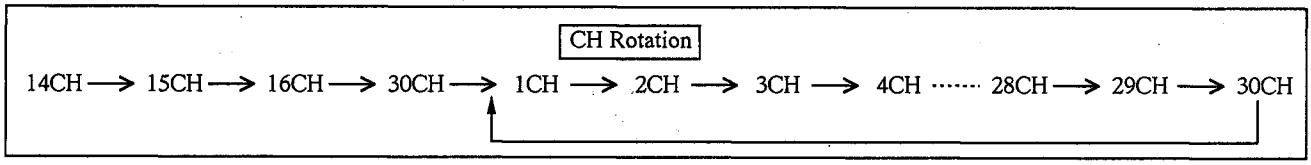
- Turn OFF the POWER (disconnect and reconnect the AC adapter plug).
- Set the handset to the CHARGE mode on the base unit.
- BELL IN.
- Press the [PAGE] key

#### ⟨Changing the Test Mode⟩

Change the test mode by pressing the [SKIP] key once. (Displays the test mode step on the 7 segment LED.)

#### ⟨Changing the Channel⟩

To change the channel, press the [REPEAT] key. The channel will change in the following sequence.
Channel is displayed on the 7 segment LED for 1 second.




* When the STEP is changed, the CHANNEL will be reset to the initial channel.

#### ⟨Test Mode Execution⟩

Each time the test mode step is changed when the [SKIP] key is pressed, displays the test mode step on the 7 segment LED.

| | | INITIAL CH | TXB PWR | TX MUTE | RX MUTE | RL CONT | A / V (A (access) ="H" V (voice) ="L") | AS IC RST | SP MUTE | RNGVOL | CHG OFF | CHG CNT | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | VCO/TX FRQ. ADJ | 14 | L | L | L | L | A | L | H | H | H | H | |
| 2 | TX MODE CHECK | 14 | L | H | L | H | A→V *•5 | H | H | H | H | H | |
| 3 | TX DATA | 14 | L | L | L | L | A→V *•5 | H | H | H | H | H | *•1 |
| 4 | RX sens | 14 | H | H | H | H | A→V *•6<br>A→A *•7 | H | H | H | H | H | |
| 5 | RSSI CHECK | 14 | H | L | L | L | A | H | L | H | H | H | *•10 |
| 6 | BEEP CHECK | 14 | L | H | H | H | A→V *•6<br>A→A *•8 | H | H | H | H | H | *•9 |
| 7 | RING OUT CHECK | 14 | H | L | L | L | A | H | H<br>H<br>H | H/L<br>*•3 | H | H | |
| 8 | DATA IN CHECK | 14 | H | L | L | L | A→V *•6<br>A→A *•7 | H | H | H | H | H | *•2 |
| 9 | CHANNEL DATA CHECK | 14 | H | L | L | L | A | H | H | H | L | H/L | *•4 |
| 10 | DUPLEX CHECK | 14 | L | H | H | H | A→V *•6<br>A→A *•8 | H | H | H | H | H | |

*• 1 Test Mode 3 : Transmission data, "0011 ..." is output continuously.
*• 2 Test Mode 8 : A bell sounds when the "0011 ..." data received, is in lock status.
*• 3 Test Mode 7 : Change the volume level with the [ANSWER] switch.
AUDIBLE ON : H, AUDIBLE OFF : MUTE, ANN ONLY : L
*• 4 Test Mode 9 : Data "1" continuously output from P CHG CNT, the CHG LED lights up when CHG IN is L.
*• 5 Test Mode 2, 3 : Sets in V (voice) 2 after output at 120m sec A (access) upon entering mode.
*• 6 Test Mode 4, 6, 8, 10 : When the lock is judged to be on (the judgment standards are the same as for normal communications), A (access) / V (voice) is switched from A (access) to V (voice).
*• 7 Test Mode 4, 8 : If UW DET can not be detected for 300ms, A (access) / V (voice) is switched from V (voice) / A (access)
*• 8 Test Mode 10 : If UW DET can not be detected, A (access) / V (voice) is switched from V (voice) / A (access).
*• 9 Test Mode 6 : Beep output alternately from H/S and LINE each time the MAILBOX1 key is pressed.
*• 10 Test Mode 5 : The bell sounds at RSSI ON.

**Note :** PASS is set as follows in CT test mode for other than step 6.
PASS 1 : H
PASS 2 : H
PASS 3 : L

DTMF frequency table

| | |
|---|---|
| ROW 1 : 696.95Hz | COL 1 : 1209.31Hz |
| ROW 2 : 770.13Hz | COL 2 : 1335.65Hz |
| ROW 3 : 852.27Hz | COL 3 : 1476.71Hz |
| ROW 4 : 940.99Hz | |

FREQUENCY TABLE (BASE UNIT)

| CH | BASE TX (MHz) | BASE RX (MHz) | CH | BASE TX (MHz) | BASE RX (MHz) |
|---|---|---|---|---|---|
| 1 | 925.000 | 902.100 | 16 | 926.500 | 903.600 |
| 2 | 925.100 | 902.200 | 17 | 926.600 | 903.700 |
| 3 | 925.200 | 902.300 | 18 | 926.700 | 903.800 |
| 4 | 925.300 | 902.400 | 19 | 926.800 | 903.900 |
| 5 | 925.400 | 902.500 | 20 | 926.900 | 904.000 |
| 6 | 925.500 | 902.600 | 21 | 927.000 | 904.100 |
| 7 | 925.600 | 902.700 | 22 | 927.100 | 904.200 |
| 8 | 925.700 | 902.800 | 23 | 927.200 | 904.300 |
| 9 | 925.800 | 902.900 | 24 | 927.300 | 904.400 |
| 10 | 925.900 | 903.000 | 25 | 927.400 | 904.500 |
| 11 | 926.000 | 903.100 | 26 | 927.500 | 904.600 |
| 12 | 926.100 | 903.200 | 27 | 927.600 | 904.700 |
| 13 | 926.200 | 903.300 | 28 | 927.700 | 904.800 |
| 14 | 926.300 | 903.400 | 29 | 927.800 | 904.900 |
| 15 | 926.400 | 903.500 | 30 | 927.900 | 905.000 |

**DSP Test Mode**

**〈Setting the Test Mode〉**

1. Set the [DIAL MODE] switch to T (TONE) side.
2. Reset power ON while holding down both the [MAILBOX 1] and [ANSWER] keys, and DSP test mode will be set after about 1.5 seconds (Check tone is heard.)

**〈Changing the Test Mode〉**

Change the test mode by pressing the [ANSWER] key once.
Disabled during REC/PLAY test.

**〈Canceling the Test Mode〉**

Cancel the test mode by executing any of the following :

- Turn OFF the POWER (disconnect and reconnect the AC adapter plug).
- Set the handset to the CHARGE mode on the base unit.
- BELL IN .
- Press the [PAGE] key

**〈Changing the Channel〉**

Change the test mode by pressing the [ERASE] key once.

Channel is displayed on the 7 segment LED for 1 second. (But channel returns to initial channel once the step is changed.)

**〈DTMF Output〉**

[VOL +] key (1, 2, 3, 4, 5, 6, 7, 8, 9 , 0, ＊ , # )

**〈Changing the Volume〉**

[VOL +] key (Reset value : 8, ANSWER LED lights up at reset value.)

- REC/PLAY test starts when the [MAILBOX 1] , [REPEAT] or [SKIP] key is pressed during stand-by. Pressing the [MAILBOX 1] , [REPEAT] or [SKIP] key again, sets stand-by.

(1) REC/PLAY Mode
MAILBOX1 : MIC/SP
SKIP : CT
REPEAT : LINE

(2) REC. Only
MAILBOX1 : LINE REC with speaker call screen
MAILBOX1 : LINE REC with H/S & speaker call screen

(3) DIAL Mode switch
T (TONE) : REC
P (PULSE) : PLAY

＊ Attempting to play one unrecorded REC/PLAY segment causes an error.
＊ The slide switch can be used while in stand-by.

| | | INITIAL CH | TXB PWR | TX MUTE | RX MUTE | RL CONT | SP MUTE | PASS1 | PASS2 | PASS3 | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 (0) | STAND BY (DTMF CHECK) | | H | L | L | H | H | H | H | L | ＊• 1 |
| (1) | CONV REC | | L | H | H | H | H | H | H | L | |
| (2) | MIC/SP PLAY | | H | L | L | L | L | H | H | L | |
| (3) | CT REC | 14 | L | H | H | L | H | L | H | H | |
| (4) | CT PLAY | 14 | L | H | H | L | H | L | H | H | |
| (5) | LINE REC | | H | L | L | H | H | H | H | L | |
| (6) | LINE PLAY | | H | L | L | H | H | H | L | L | |
| (7) | LINE REC | | H | L | L | H | L | H | H | L | ＊• 2 |
| (8) | LINE REC | 14 | L | H | L | H | L | H | H | L | ＊• 3 |
| 2 (9) | DTMF OUT | | H | L | L | H | H | H | L | L | |

**Note** : AV sets to V after 120 msec A output. ASIC RST sets to H.

＊• 1 Test Mode 1 (0) : A key-touch sound is issued when DTMF is detected.
＊• 2 Test Mode 1 (7) : Speaker call screen.
＊• 3 Test Mode 1 (8) : Speaker and sub-unit call screen.

## HANDSET

### ⟨Setting the Test Mode⟩

Enter test mode by pressing both the [*] and [#] key on the portable, holding them down while your carry out a power on reset (switch from BATT SAVE to RING ON), and continuing to hold the keys down for about 1 second afterwards.

- The [MUTE] key, [FLASH] key only issue the key touch sound; they do not change the status.

### ⟨Canceling the Test Mode⟩

Cancel the test mode by executing any of following :

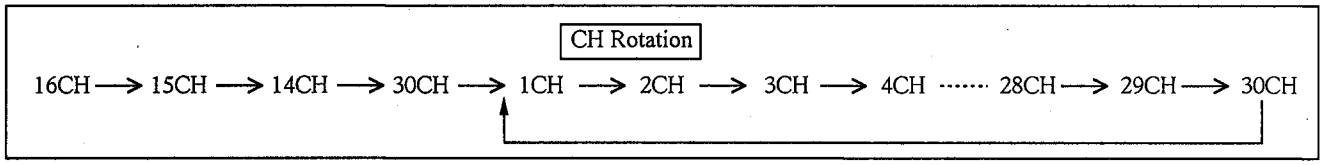
- Turn OFF the POWER (disconnect and reconnect BATT CONNECTOR J502).
- Press the [TALK] key.
- Set the handset to the [CHARGE] mode on the base unit.
  (However, charge is disabled for No. 9)

### ⟨Changing the Test Mode⟩

Changing the test mode No. by pressing the respective key from 1 – 0.

### ⟨Changing the Channel⟩

To change the channel, press the [CHANNEL] key. The channel will change in the following sequence.




* When the STEP is changed, the CHANNEL will be reset to the initial channel.

### ⟨Test Mode Execution⟩

Press the respective key for the desired test mode No. to execute any of the following tests :

| | | KEY | INITIAL CH | TX MUTE | RX MUTE | A/V<br>A (access) ="H"<br>V (voice) ="L" | AS IC RST | TX PWR | RX PWR SC | CONT V | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | VCO/TX FRQ. ADJ | 1 | 16 | L | L | A | L | L | H | H | |
| 2 | TX MODE CHECK | 2 | 16 | H | L | A→V *• 10 | H | L | H | L | |
| 3 | TX DATA | 3 | 16 | L | L | A→V *• 10 | H | L | H | L | *• 1 |
| 4 | RX sens | 4 | 16 | L | H | A→V *• 11<br>V→A *• 12 | H | H | H | L | *• 2 |
| 5 | RSSI sens | 5 | 16 | L | L | A | H | H | H | L | RSSI ON : BAT LED ON |
| 6 | RECEIVE DATA CHECK | 6 | 16 | L | L | A→V *• 11<br>V→A *• 12 | H | H | H | L | *• 3, *• 9 |
| 7 | BELL | 7 | 16 | L | L | A | H | H | L | H | *• 4 |
| 8 | BAT. LOW CHECK | 8 | 16 | L | L | A | H | H | L | H | *• 5, *• 9 |
| 9 | CHARGE CHECK | 9 | 16 | L | L | A | H | H | L | H | *• 6, *• 9 |
| 10 | DUPLEX | 0 | 16 | H | H | A→V *• 10<br>V→A *• 13 | H | L<br>*• 8 | H | L | *• 7 |

*• 1 Test Mode 3 : As the transmission data, "0011 ..."is output continuously.
*• 2 Test Mode 4 : In RX mode, the SP volume is changed with the VOL key. (Default SP volume high)
*• 3 Test Mode 6 : When "0011 ..."is received in lock mode, the sound (1kHz) is output continuously at low volume.
*• 4 Test Mode 7 : The default 2-tone bell sounds (2kHz, 1kHz) are output at high volume.
(The volume is changed with the VOL key.)
*• 5 Test Mode 8 : The bell (1kHz) is sounded at low volume when P BATLOW is low. (The BATT LOW LED lights up.)
*• 6 Test Mode 9 : The bell (1kHz) is sounded at low volume when P CHRGIN is low.
*• 7 Test Mode 10 : The SP volume is changed with the VOL key. (Default SP volume high)
*• 8 Test Mode 10 : When A/V is A (high), TX PWR is switched off (high).
*• 9 Test Mode 6, 8, 9 : At the same time that the bell sounds, the BATT LOW LED lights up.
*• 10 Test Mode 10 : The system enters the mode and after output for 100ms with A (access), is fixed to V (voice).
*• 11 Test Mode 4, 6 : When the lock is judged to be on (the judgment standards are the same as for normal communications), A (access) / V (voice) is switched from A (access) to V (voice).
*• 12 Test Mode 4, 6 : If UW DET can not be detected for 300ms, A (access) / V (voice) is switched from V (voice) to A (access).
*• 13 Test Mode 10 : If UW DET can not be detected, A (access) / V (voice) is switched from V (voice) to A (access). TX PWR is switched off.

FREQUENCY TABLE (HANDSET)

| CH | PORT TX (MHz) | PORT RX (MHz) |
|---|---|---|
| 1 | 902.100 | 925.000 |
| 2 | 902.200 | 925.100 |
| 3 | 902.300 | 925.200 |
| 4 | 902.400 | 925.300 |
| 5 | 902.500 | 925.400 |
| 6 | 902.600 | 925.500 |
| 7 | 902.700 | 925.600 |
| 8 | 902.800 | 925.700 |
| 9 | 902.900 | 925.800 |
| 10 | 903.000 | 925.900 |
| 11 | 903.100 | 926.000 |
| 12 | 903.200 | 926.100 |
| 13 | 903.300 | 926.200 |
| 14 | 903.400 | 926.300 |
| 15 | 903.500 | 926.400 |
| 16 | 903.600 | 926.500 |
| 17 | 903.700 | 926.600 |
| 18 | 903.800 | 926.700 |
| 19 | 903.900 | 926.800 |
| 20 | 904.000 | 926.900 |
| 21 | 904.100 | 927.000 |
| 22 | 904.200 | 927.100 |
| 23 | 904.300 | 927.200 |
| 24 | 904.400 | 927.300 |
| 25 | 904.500 | 927.400 |
| 26 | 904.600 | 927.500 |
| 27 | 904.700 | 927.600 |
| 28 | 904.800 | 927.700 |
| 29 | 904.900 | 927.800 |
| 30 | 905.000 | 927.900 |

# SECTION 4
# ELECTRICAL ADJUSTMENTS

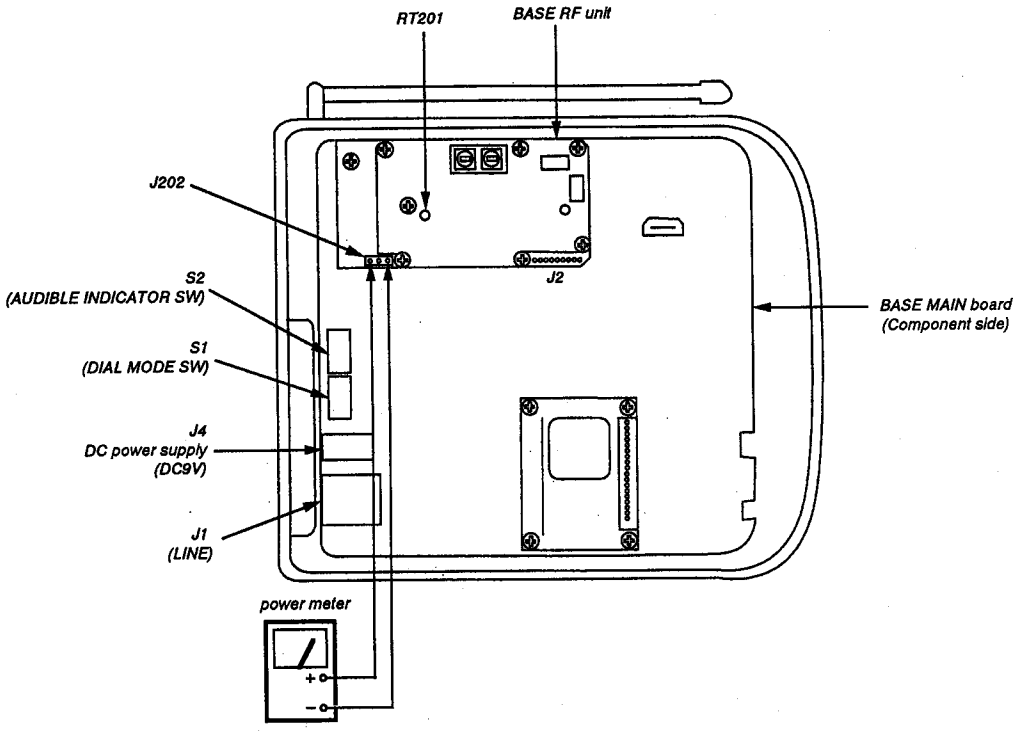
Use RF unit is for unit replacement/repair. Use it only as reference material.

**〈BASE UNIT SECTION〉**

- DIAL MODE SW : T → P
- Make the set to the test mode. (see page 14)

## 1. Transmitter Adjustment

**Setting :**

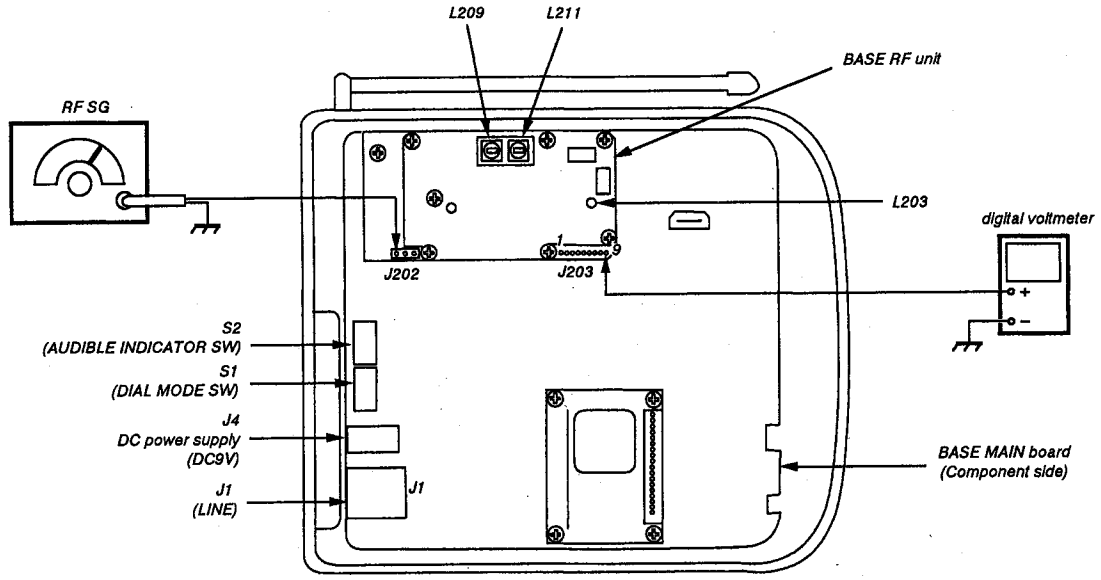



**Procedure :**

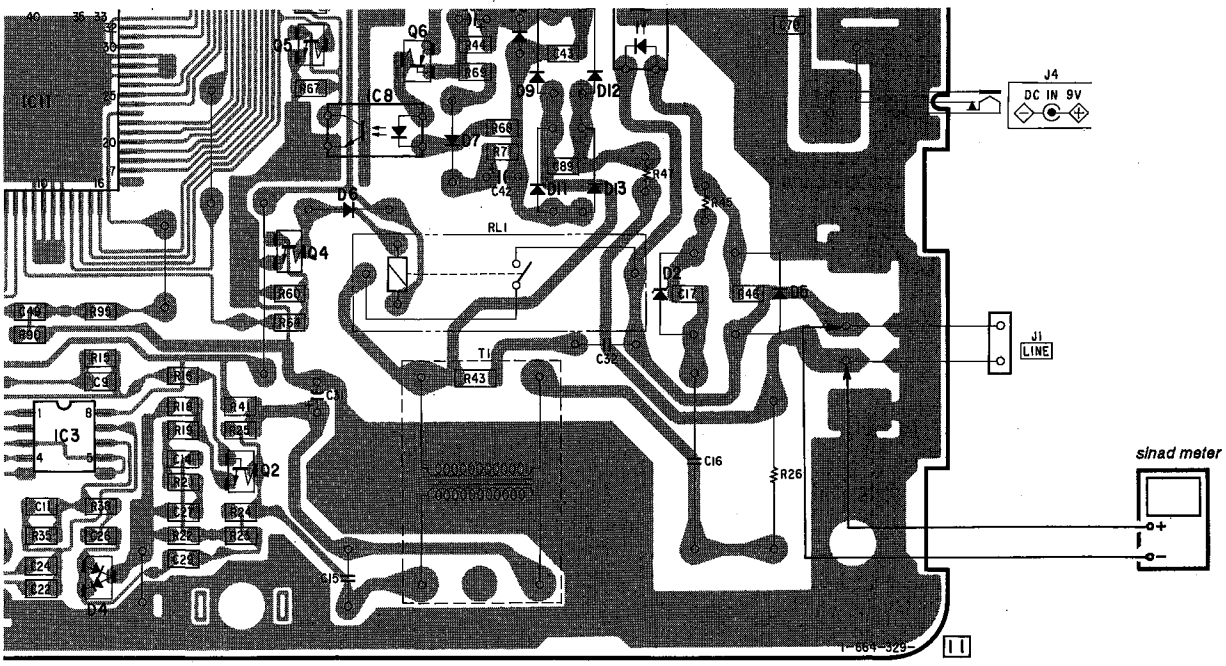
1. Press the [REPEAT] key and set to channel 14.
2. Connect power meter to J202 (ANT).
3. Adjust RT201 so that power meter reading is at − 5.5 ± 0.5dBm. (TX POWER ADJ.)

## 2. Receiver Adjustment

**Setting :**




**【BASE MAIN BOARD】** (Conductor side)




**Procedure :**

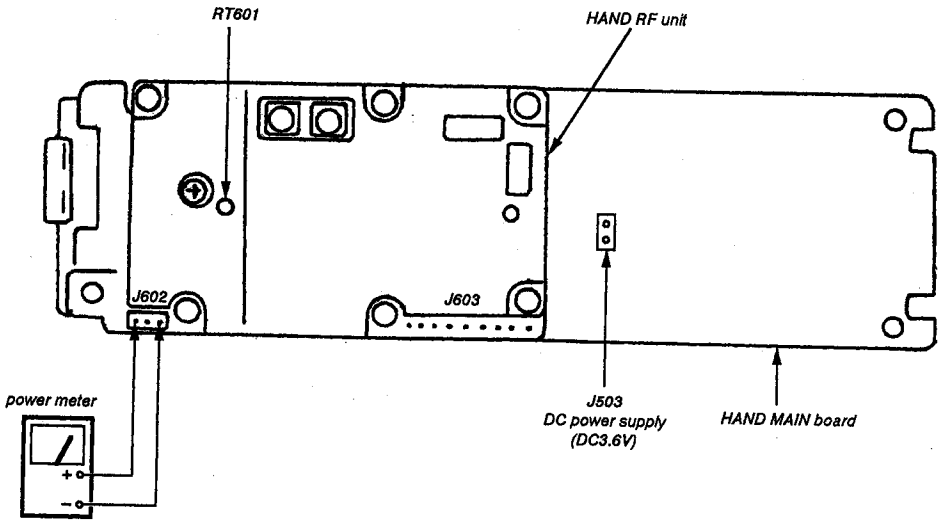
1. Set RF SG frequency to 903.400MHz, no modulation, output level − 50dBm.
   (Press the REPEAT key and set CH14.)
2. Connect digital voltmeter to J203 ( ⑨ pin) and adjust L203 to 0.80 ± 0.05V. (CH14)
3. Set RF SG output to frequency 899.1500MHz, modulation 1kHz, ± 25kHz DEV, output level − 55dBm.
4. Connect sinad meter to J1 (LINE jack).
5. Adjust L211 so that sinad meter reading is at minimum.
6. Set the DIAL MODE switch P → T.
7. Set RF SG output to frequency 899.1500MHz, modulation 1kHz, ± 25kHz DEV, output level − 112.5dBm.
8. Adjust L209 so that sinad meter reading is at maximum.
   Check that at this time, sinad meter level is more than 12dB.

## ⟨HANDSET SECTION⟩

- Make the set to the test mode. (see page 17)

### 1. Transmitter Adjustment

**Setting :**



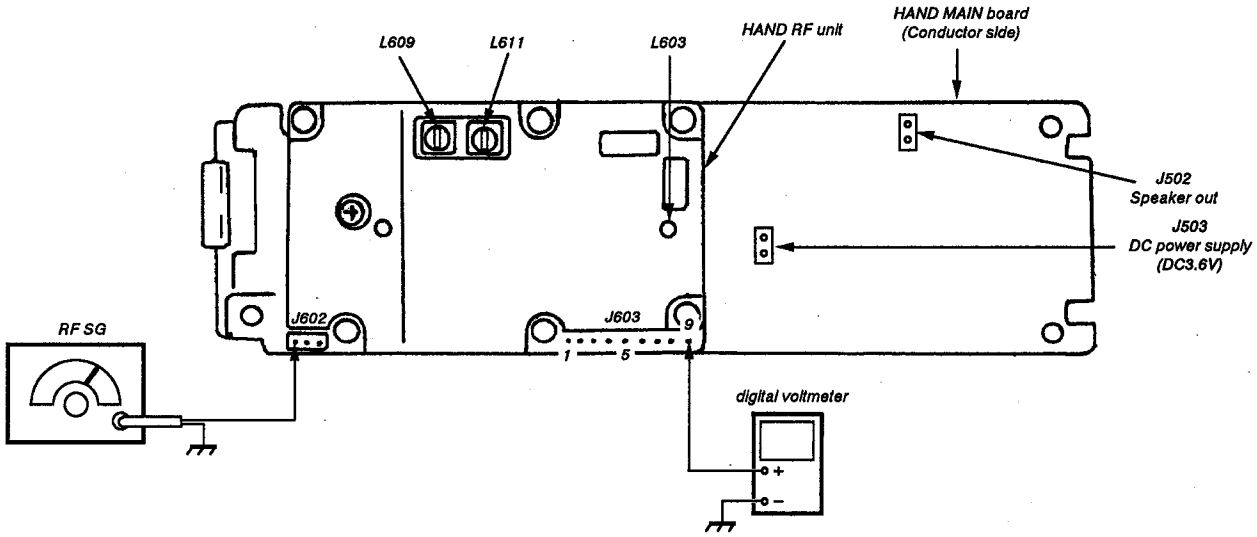

**Procedure :**

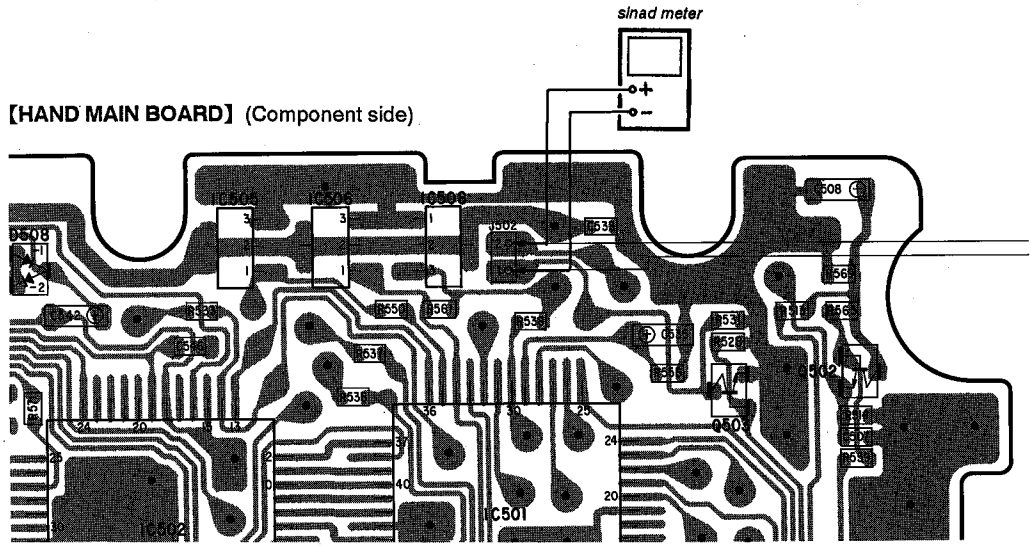
1. Press the [1] → [6] key. (CH16)
2. Connect power meter to J602 (ANT).
3. Adjust RT601 so that power meter reading is at − 3.5 ± 0.5dBm. (TX POWER ADJ.)

## 2. Receiver Adjustment

**Setting :**

- Remove speaker from J502 (connector)




**Procedure :**

1. Press the [1] →[6] key (CH16) and set RF SG frequency 926.500MHz no modulation, output level − 50dBm.
2. Connect digital voltmeter to J603 (⑨ pin) and Adjust L603 to 0.80 ± 0.05V. (CH16)
3. Set RF SG output to frequency 930.7500MHz, modulation 1kHz, ± 25kHz Dev, output level − 55dBm.
4. Connect sinad meter to J502 (speaker out).
5. Adjust L611 so that sinad meter reading is at minimum.
6. Set RF SG output to 926.500MHz, modulation 1kHz, ± 25kHz DEV, output level − 112.5dBm.
7. Adjust L609 so that sinad meter reading is at maximum. Check that at this time, sinad meter level is more than 12dB.

# SECTION 5
# EXPLANATION OF IC TERMINALS

**〈BASE UNIT〉**

**IC11 μPD75117HGC-038-AB8**

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | CHG DET | I | Charge signal input. L : Charge ON, H : Charge OFF |
| 2 | | – | Not used (Connected to ground). |
| 3 | | – | Not used (Connected to ground). |
| 4 | | – | Not used (Connected to ground). |
| 5 | AP2 | O | Sound PASS control output 2. L : Normally |
| 6 | AP1 | O | Sound PASS control output 1. L : Normally |
| 7 | AP3 | O | Sound PASS control output 3. L : Normally |
| 8 | RL CNT | O | Hook relay control. H : OFF hook, L : ON hook |
| 9 | Vss | – | Ground. |
| 10 | | – | Not used (Connected to ground). |
| 11 | | – | Not used (Connected to ground). |
| 12 | | – | Not used (Connected to ground). |
| 13 | DTC K5 | – | Synchronous clock input from AS IC. |
| 14 | PDET | I | Telephone line voltage detection input (independent telephone & CPC detection). L : DET |
| 15 | BDET | I | Bell detection frequency input. |
| 16 | T/P | I | TONE/PULSE switch input. H : T (Tone), L : P (Pulse) |
| 17 | AB ON | I | AUDIBLE ON switch input. |
| 18 | AB OFF | I | AUDIBLE OFF switch input. |
| 19 | DC OFF | I | DC voltage DET. H : Voltage Low, L : Voltage normally |
| 20 | SP VOL | O | Speaker volume control. |
| 21 | SP MUTE | O | Speaker mute ON/OFF control. H : ON, L : OFF |
| 22 | RING | O | Ringer signal output. |
| 23 | BEEP | O | Sound output control (telephone line or sub-telephone). L : MIN, H : MAX |
| 24 | SI | I | Serial data input from SUB MICOM (IC301). |
| 25 | SO | O | Serial data output to SUB MICOM (IC301). |
| 26 | SCK | O | Serial clock output to SUB MICOM (IC301). |
| 27 | | – | Not used (Connected to ground). |
| 28 | | – | Not used (Connected to ground). |
| 29 | | – | Not used (Connected to ground). |
| 30 | PWR OFF | I | Power fail input terminal. L : Power fail |
| 31 | SQ | I | SQ signal input. |
| 32 | LE | O | Enable output to PLL IC (IC203). |
| 33 | DE | O | Data output to PLL IC (IC203). |
| 34 | CK | O | Clock output to PLL IC (IC203). |
| 35 | TX | O | Power supply control output for transmission circuit. L : OFF, H : ON |
| 36 | TX MUTE | O | Transmission mute ON/OFF control output. |
| 37 | A/V | O | Access/Voice select. |
| 38 | TX DATA | O | MSK data output. |
| 39 | RX MUTE | O | Reception mute ON/OFF control. |
| 40 | IC | – | Connected to VDD. |

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 41 | $V_{DD}$ | – | Power supply (+5V). |
| 42 | BB RST | O | Reset signal output to AS IC (IC1). |
| 43 | UW DET5 | I | Unique word detect from AS IC (IC1). |
| 44 | RX DT5 | I | MSK data input. |
| 45 | ACK | I | ACK input from DSP IC (IC402). |
| 46 | | – | Not used (Connected to ground). |
| 47 | CHG OUT | O | Charge current control. |
| 48 | CHG CNT | O | Charge control. |
| 49 | HI/LO | O | DSP Hight/Low byte select. L : L byte, H : H byte |
| 50 | HSTRD | O | Data read control output to DSP. L : Read, H : Normally |
| 51 | HSTWR | O | Data write control output to DSP. L : Write, H : Normally |
| 52 | RESET | O | Reset signal output to DSP IC (IC402). |
| 53 | PDN | O | Power supply control output to DSP IC (IC402). |
| 54 | RST | I | System reset input terminal. |
| 55 | X2 | – | System clock oscillator (4.194304MHz) |
| 56 | X1 | – | System clock oscillator (4.194304MHz) |
| 57 | HSTB7 | I/O | DSP data input/output 7 terminal. |
| 58 | HSTB6 | I/O | DSP data input/output 6 terminal. |
| 59 | HSTB5 | I/O | DSP data input/output 5 terminal. |
| 60 | HSTB4 | I/O | DSP data input/output 4 terminal. |
| 61 | HSTB3 | I/O | DSP data input/output 3 terminal. |
| 62 | HSTB2 | I/O | DSP data input/output 2 terminal. |
| 63 | HSTB1 | I/O | DSP data input/output 1 terminal. |
| 64 | HSTB0 | I/O | DSP data input/output 0 terminal. |

〈SUB〉

**IC301 MB89181PF-G-153-BND**

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | SEG3 | O | Segment output 3 to LCD. |
| 2 | SEG4 | O | Segment output 4 to LCD. |
| 3 | SEG5 | O | Segment output 5 to LCD. |
| 4 | SEG6 | O | Segment output 6 to LCD. |
| 5 | SEG7 | O | Segment output 7 to LCD. |
| 6 | | – | Not used (Open). |
| 7 | | – | Not used (Open). |
| 8 | | – | Not used (Open). |
| 9 | | – | Not used (Open). |
| 10 | | – | Not used (Open). |
| 11 | | – | Not used (Open). |
| 12 | | – | Not used (Open). |
| 13 | | – | Not used (Open). |
| 14 | | – | Not used (Open). |
| 15 | | – | Not used (Open). |
| 16 | | – | Not used (Open). |
| 17 | | – | Not used (Open). |
| 18 | | – | Not used (Open). |
| 19 | | – | Not used (Open). |
| 20 | | – | Not used (Open). |
| 21 | | – | Not used (Open). |
| 22 | | – | Not used (Open). |
| 23 | | – | Not used (Open). |
| 24 | EXTINT | I | External input terminal. |
| 25 | Vss | – | Ground. |
| 26 | R1 | O | Key matrix output terminal 1. |
| 27 | R2 | O | Key matrix output terminal 2. |
| 28 | R3 | O | Key matrix output terminal 3. |
| 29 | | – | Not used (Open). |
| 30 | | – | Not used (Open). |
| 31 | CHG | O | Charge LED drive output. L : light up |
| 32 | LINE | O | Line LED drive output. L : light up |
| 33 | SCK | I | 8 bit serial I/O clock input from MAIN MICOM (IC11). |
| 34 | SO | O | 8 bit serial data output to MAIN MICOM (IC11). |
| 35 | SI | I | 8 bit serial data input from MAIN MICOM (IC11). |
| 36 | | – | Not used. (connected to ground). |
| 37 | ANS | O | ANSWER LED drive output. L : light up |
| 38 | | – | Not used (Open). |
| 39 | X1 | – | Sub clock oscillator (4.0MHz). |
| 40 | X0 | – | Sub clock oscillator (4.0MHz). |

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 41 | | – | Not used (connected to ground). |
| 42 | | – | Not used (Open). |
| 43 | | – | Not used (connected to ground). |
| 44 | $\overline{\text{RESET}}$ | I | Reset signal input terminal. |
| 45 | | – | Not used (Open). |
| 46 | | – | Not used (Open). |
| 47 | | – | Not used (Open). |
| 48 | C4 | I | Key matrix input terminal 4. |
| 49 | C3 | I | Key matrix input terminal 3. |
| 50 | C2 | I | Key matrix input terminal 2. |
| 51 | C1 | I | Key matrix input terminal 1. |
| 52 | | – | Not used (Open). |
| 53 | | – | Not used (Open). |
| 54 | V1 | – | Power supply 1 for LCD drive. |
| 55 | V2 | – | Power supply 2 for LCD drive. |
| 56 | V3 | – | Power supply 2 for LCD drive. |
| 57 | Vcc | – | Power supply (+5V). |
| 58 | COM3 | O | LCD COM output 3. |
| 59 | COM2 | O | LCD COM output 2. |
| 60 | COM1 | O | LCD COM output 1. |
| 61 | COM1 | O | LCD COM output 1. |
| 62 | SEG0 | O | Segment output 0 to LCD. |
| 63 | SEG1 | O | Segment output 1 to LCD. |
| 64 | SEG2 | O | Segment output 2 to LCD. |

〈HANDSET〉

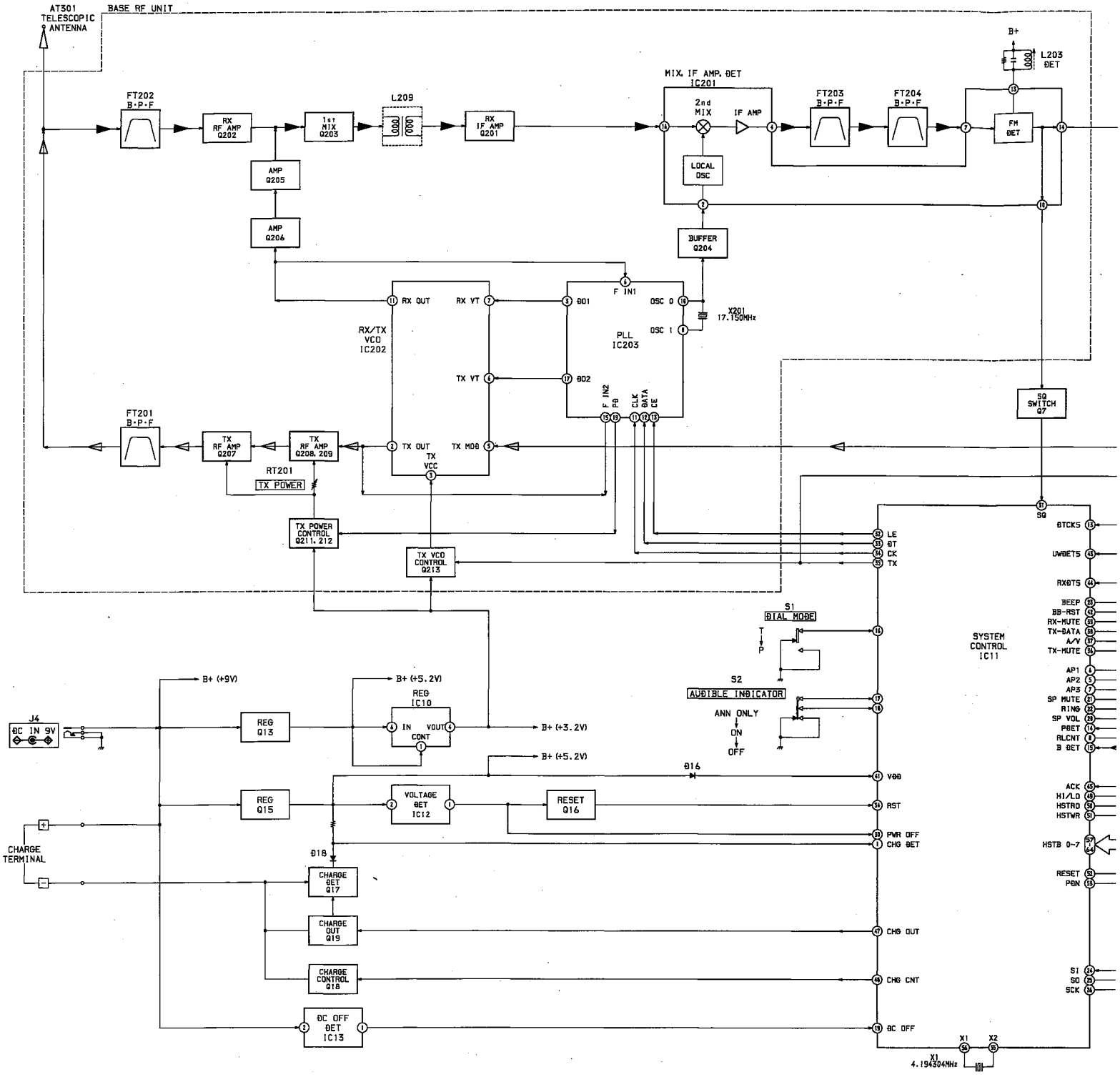
**IC501 MB89174APF-G-155-BND**

| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 1 | | – | Not used (Open). |
| 2 | $\overline{\text{RESET}}$ | I | System reset. L : Reset |
| 3 | | – | Not used (Connected to ground). |
| 4 | GND | – | Ground. |
| 5 | X0 | I | Internal oscillator (4.192MHz). |
| 6 | X1 | O | External oscillator (4.192MHz). |
| 7 | Vcc | – | Power supply (+3.6V). |
| 8 | | – | Not used (Connected to ground). |
| 9 | | – | Not used (Open). |
| 10 | | – | Not used (Open). |
| 11 | RING VOL | O | Ringer volume control. L : Normally/MIN, H : MAX |
| 12 | SP VOL | O | Speaker volume control. L : MIN, H : MAX |
| 13 | PLL CLK | O | Clock output for PLL IC. |
| 14 | PLL DATA | O | Data output for PLL IC. |
| 15 | PLL EN | O | Enable output for PLL IC. |
| 16 | SC | O | Power supply control output for RF. L : OFF, H : ON |
| 17 | | – | Not used (Open). |
| 18 | | – | Not used (Open). |
| 19 | GND | – | Ground. |
| 20 | ROW1 | O | Key matrix scan output. |
| 21 | ROW2 | O | Key matrix scan output. |
| 22 | ROW3 | O | Key matrix scan output. |
| 23 | ROW4 | O | Key matrix scan output. |
| 24 | COL1 | I | Key matrix scan input. |
| 25 | COL2 | I | Key matrix scan input. |
| 26 | COL3 | I | Key matrix scan input. |
| 27 | COL4 | I | Key matrix scan input. |
| 28 | COL5 | I | Key matrix scan input. |
| 29 | WAKE UP | I | Activation input for intermittent reception (Stand-by cancellation input). Cancel : L |
| 30 | SQ IN | I | SQ input terminal. SQ available : L, Not SQ available : H |
| 31 | TX CONT | O | Power supply control output for transmission. L : ON |
| 32 | BATT SAVE | I | Battery save switch input (Stand-by cancellation input). L : Ring ON, H : Battry save |
| 33 | CHG IN | I | Charge signal input. L : Carge ON, H : Charge OFF |
| 34 | BATT OFF | I | Signal input terminal for availability/non-availability of battery.<br>Not available : L, Available : H |
| 35 | BATT LOW | I | Battery low input. L : Low, H : Normally |

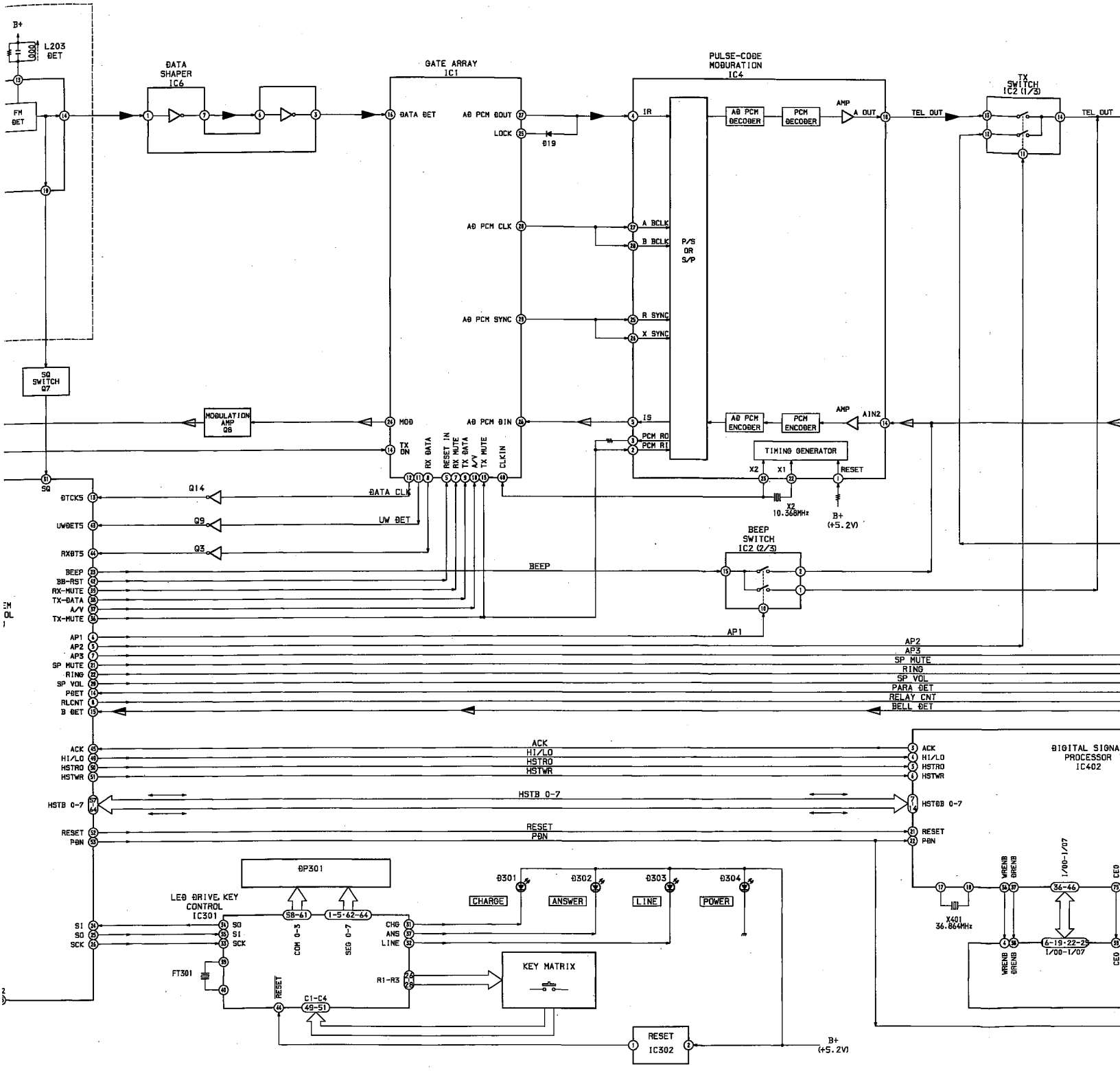
| Pin No. | Pin name | I/O | Description |
|---|---|---|---|
| 36 | TX MUTE | O | Mute ON/OFF control for transmission. L : Mute ON, H : Mute OFF |
| 37 | ASIC CLK | I | Synchronous clock (1.33kHz) input from AS IC. |
| 38 | RING OUT | O | Ringer signal ouput. |
| 39 | UW DET | I | UW detection pulse input. L : Detection |
| 40 | A/V | O | Access/Voice select. H : Access, L : Voice |
| 41 | TX DATA | O | Transmission data output. |
| 42 | RX DATA | I | RX data input. |
| 43 | GND | – | Ground. |
| 44 | $\overline{\text{RX MUTE}}$ | O | RX mute control output. L : Mute ON |
| 45 | $\overline{\text{ASIC RESET}}$ | O | Reset signal output to AS IC. L : Reset |
| 46 | BATT LED | O | BATT LED drive. L : Light |
| 47 | TALK LED | O | TALK LED drive. L : Light |
| 48 | CONV | O | Power supply control output for audio section. L : ON, OFF : H |

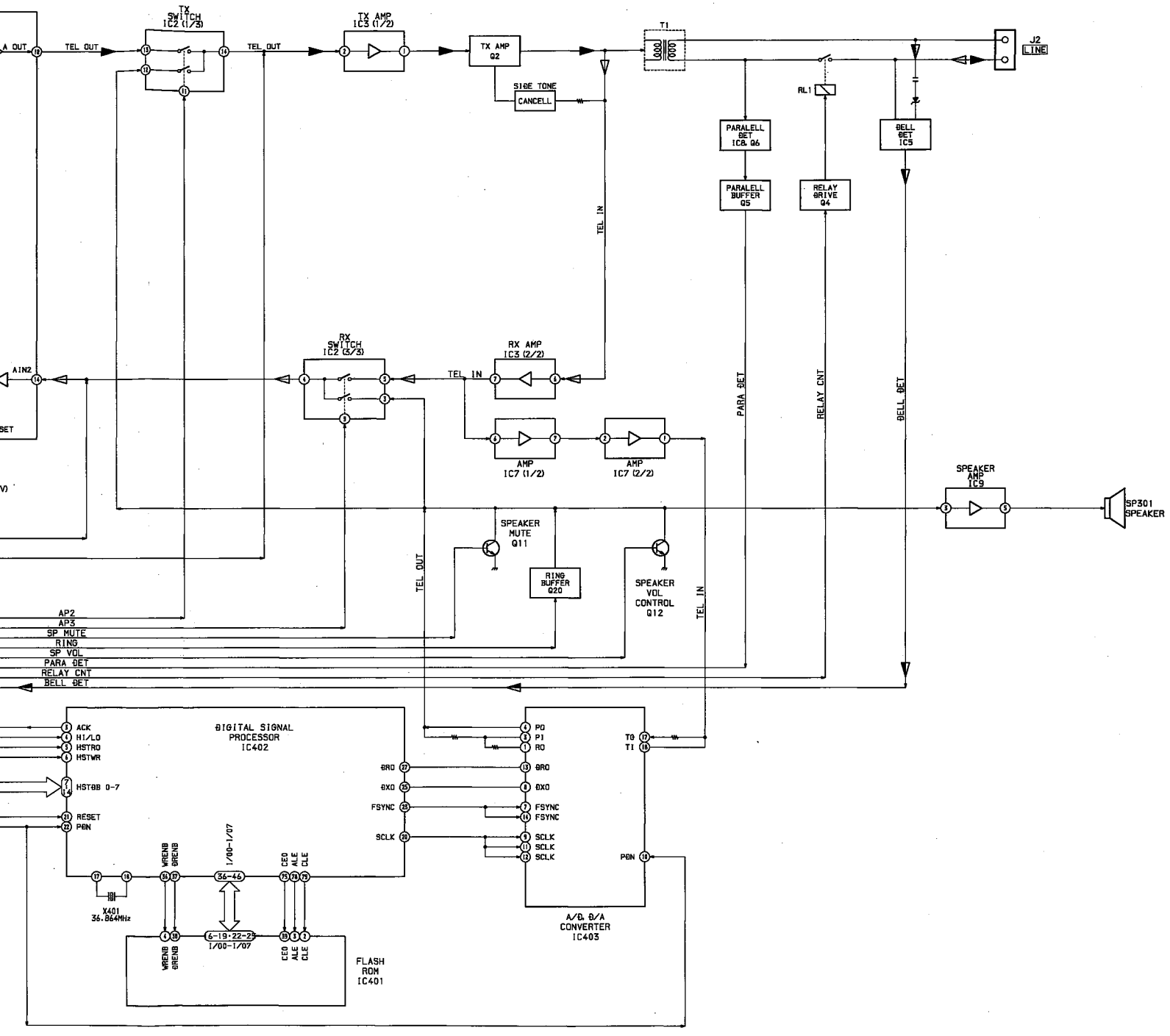
# SECTION 6
# DIAGRAMS

## 6-1. BLOCK DIAGRAM (BASE UNIT SECTION)



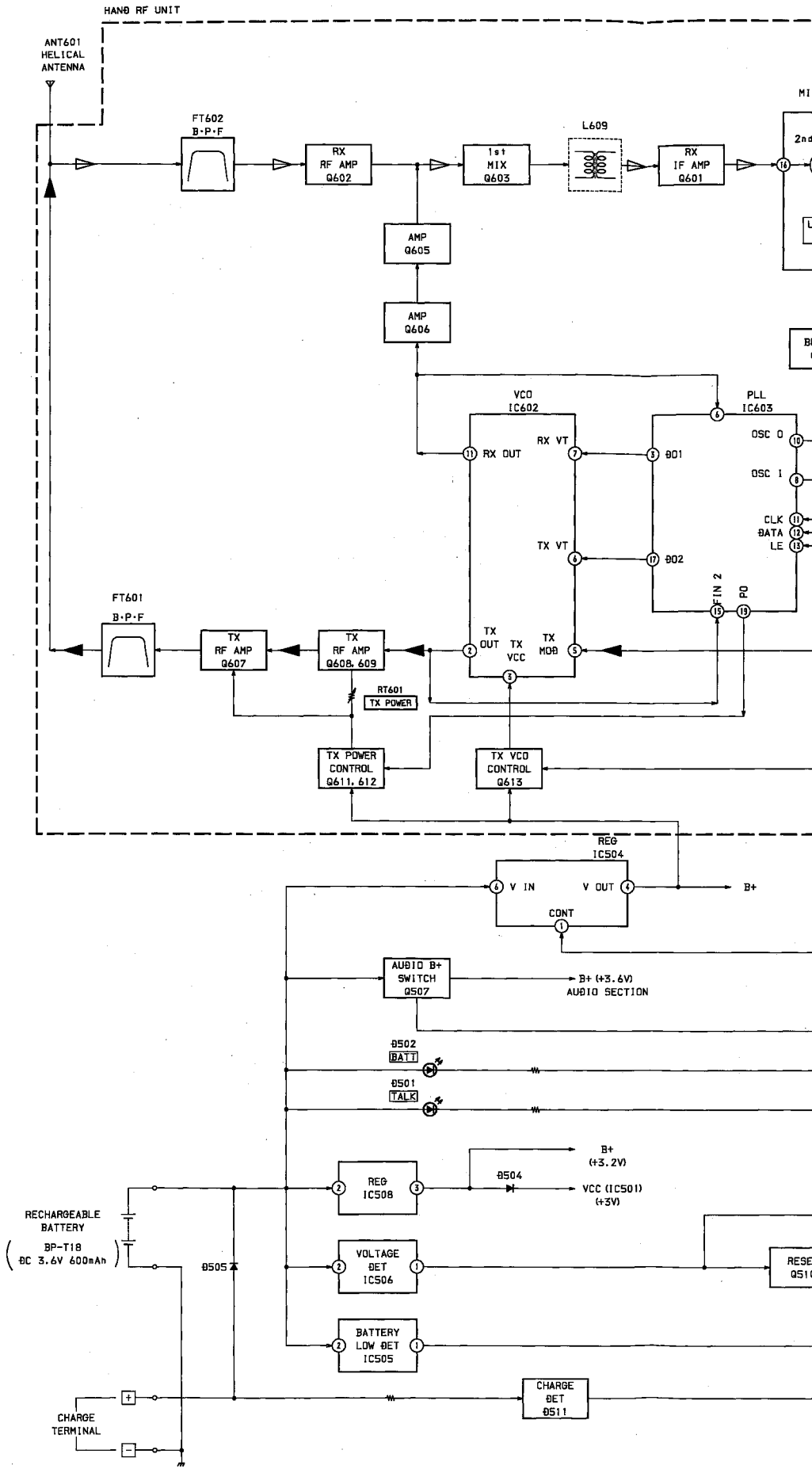

02

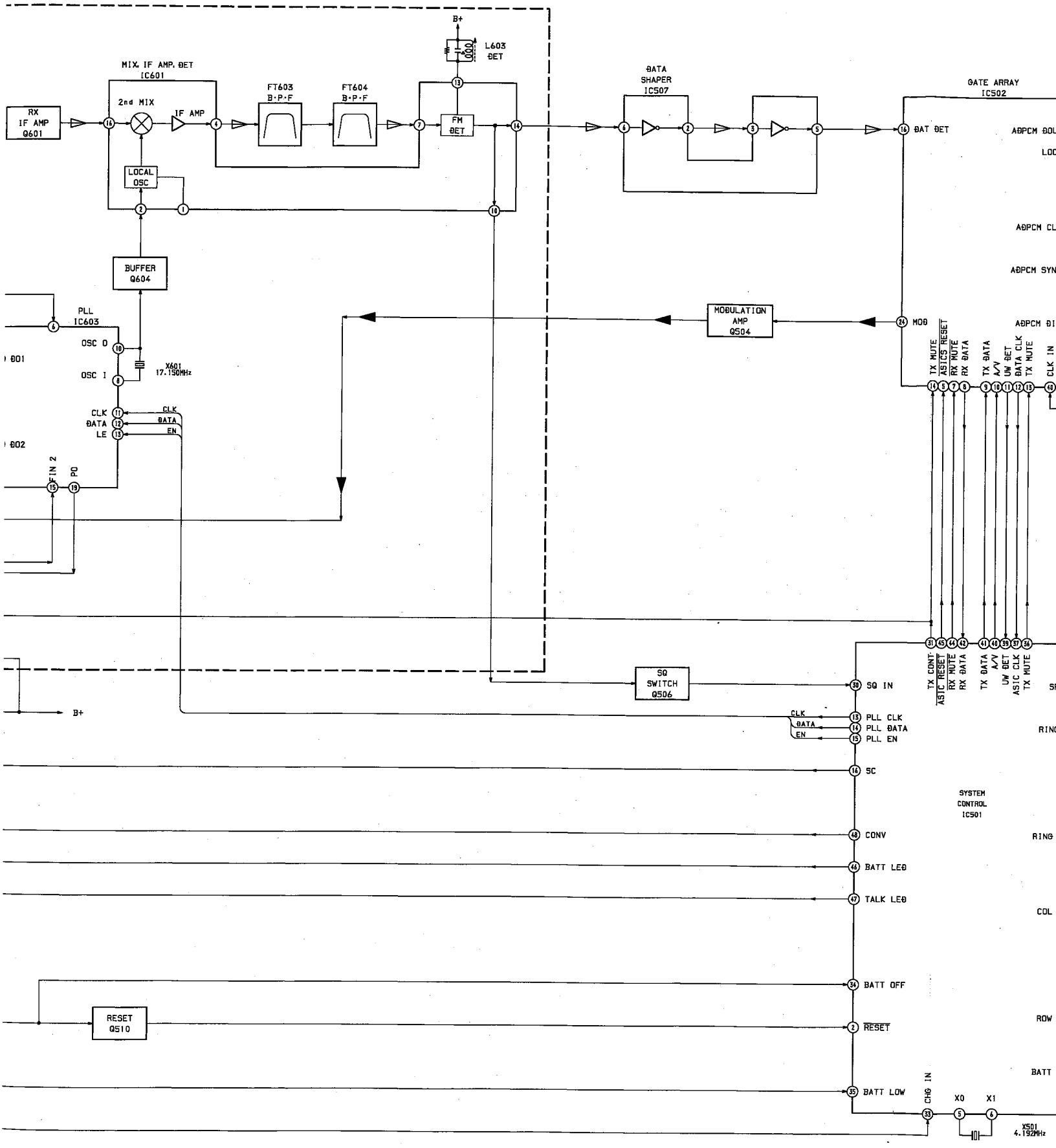

B+
L203
DET
FM
DET
DATA
SHAPER
IC6
GATE ARRAY
IC1
PULSE-CODE
MODURATION
IC4
TX
SWITCH
IC2 (1/3)
TEL OUT
DATA DET
A0 PCM DOUT
LOCK
D19
IR
A0 PCM
DECODER
PCM
DECODER
AMP
A OUT
A0 PCM CLK
A BCLK
B BCLK
P/S
OR
S/P
A0 PCM SYNC
R SYNC
X SYNC
SQ
SWITCH
Q7
MODULATION
AMP
Q8
MOD
A0 PCM DIN
IS
A0 PCM
ENCODER
PCM
ENCODER
AMP
AIN2
PCM RO
PCM RI
TIMING GENERATOR
X2
X1
RESET
TX
ON
RX DATA
RESET IN
RX MUTE
TX DATA
A/V
TX MUTE
CLKIN
SQ
DTCKS
Q14
DATA CLK
UW0ETS
Q9
UW DET
RXBTS
Q3
X2
10.368MHz
B+
(+5.2V)
BEEP
SWITCH
IC2 (2/3)
BEEP
BB-RST
RX-MUTE
TX-DATA
A/V
TX-MUTE
AP1
AP2
AP3
SP MUTE
RING
SP VOL
PDET
RLCNT
B DET
PARA DET
RELAY CNT
BELL DET
ACK
HI/LO
HSTRO
HSTWR
HSTB 0-7
RESET
PON
DIGITAL SIGNAL
PROCESSOR
IC402
DP301
LED DRIVE, KEY
CONTROL
IC301
S8-61
1-5-62-64
COM 0-3
SEG 0-7
SI
SO
SCK
CHG
ANS
LINE
D301
D302
D303
D304
CHARGE
ANSWER
LINE
POWER
FT301
KEY MATRIX
R1-R3
C1-C4
49-51
RESET
IC302
X401
36.864MHz
WRENB
DRENB
I/00-1/07
36-46
6-19-22-25
CED

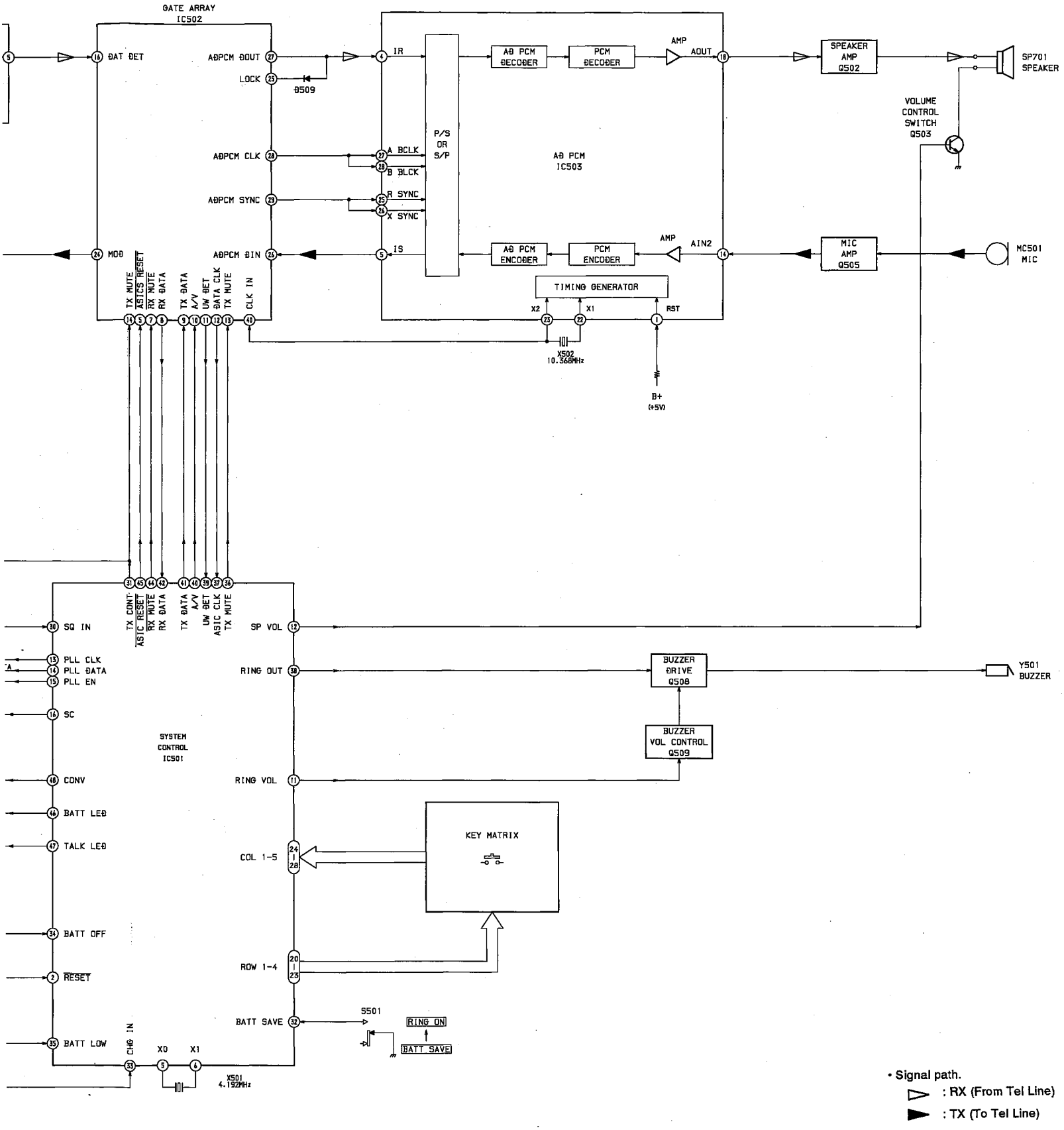



• Signal path.
- : RX (From Tel Line)
- : TX (To Tel Line)
- : bell

## 6-2. BLOCK DIAGRAM (HANDSET SECTION)




B+
L603
DET
MIX, IF AMP, DET
IC601
2nd MIX
IF AMP
RX
IF AMP
Q601
FT603
B.P.F
FT604
B.P.F
FM
DET
DATA
SHAPER
IC507
GATE ARRAY
IC502
DAT DET
ADPCM DOL
LOC
ADPCM CL
ADPCM SYN
ADPCM DI
LOCAL
OSC
BUFFER
Q604
PLL
IC603
OSC O
OSC I
X601
17.150MHz
CLK
DATA
LE
CLK
DATA
EN
FIN 2
PO
MODULATION
AMP
Q504
MOD
TX MUTE
ASICS RESET
RX MUTE
RX DATA
TX DATA
A/V
UW DET
DATA CLK
TX MUTE
CLK IN
TX CONT
ASIC RESET
RX MUTE
RX DATA
TX DATA
A/V
UW DET
ASIC CLK
TX MUTE
SQ
SWITCH
Q506
SQ IN
PLL CLK
PLL DATA
PLL EN
SC
SYSTEM
CONTROL
IC501
CONV
BATT LED
TALK LED
BATT OFF
RESET
Q510
RESET
BATT LOW
CHG IN
X0
X1
X501
4.192MHz
RING
COL
ROW
BATT



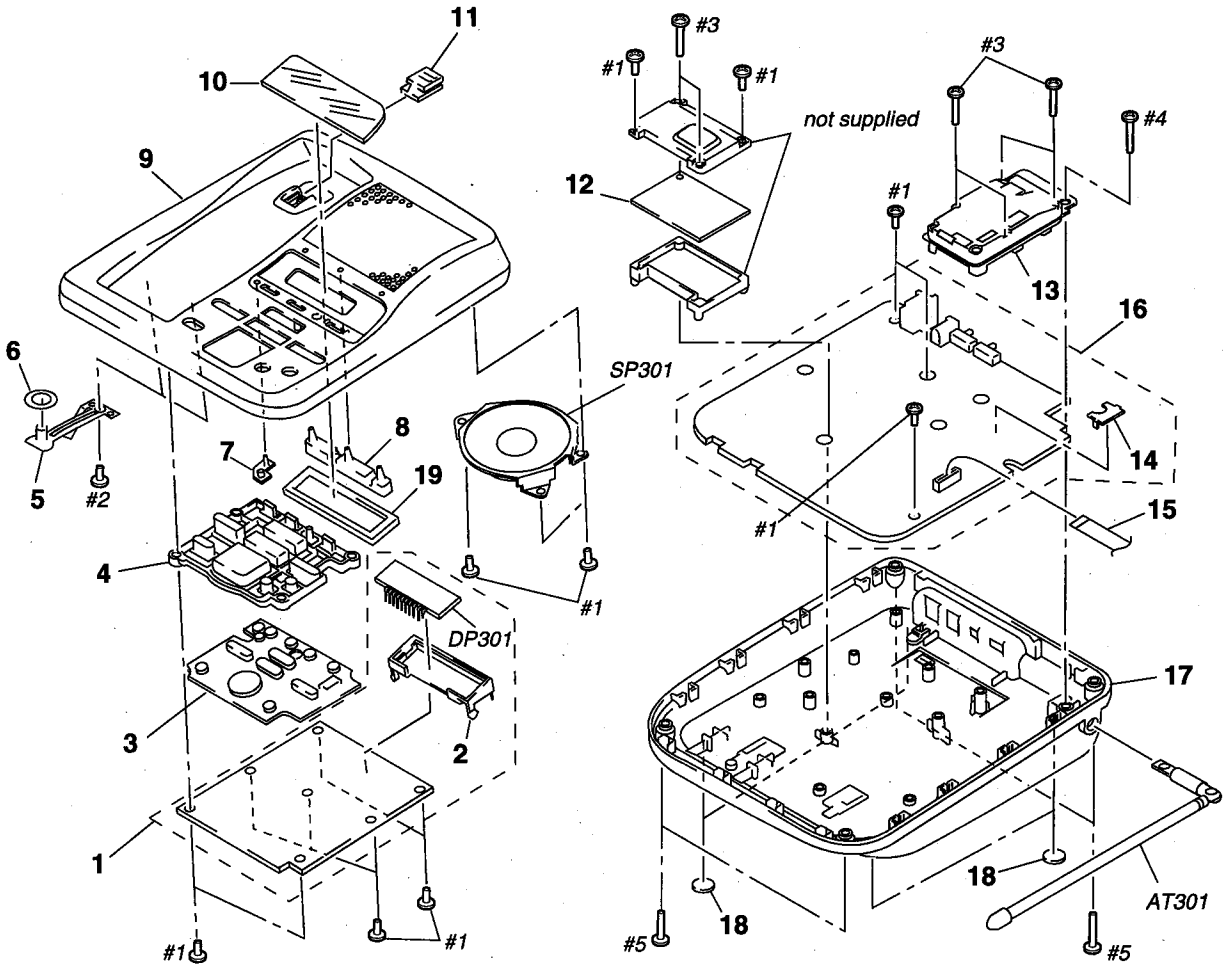

• Signal path.
: RX (From Tel Line)
: TX (To Tel Line)

# SECTION 7
# EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

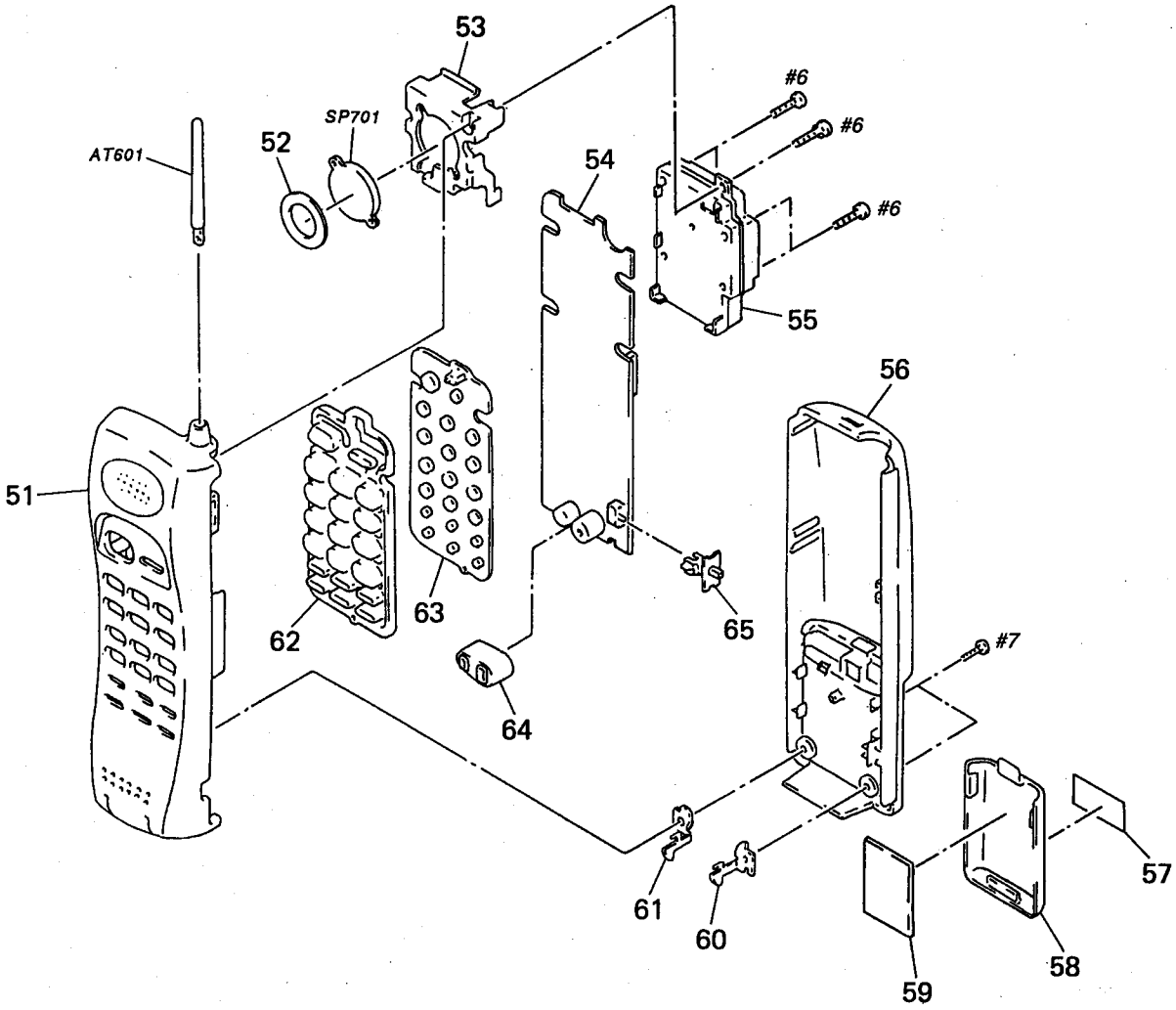
## 7-1. BASE UNIT SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 1 | A-3672-196-A | BASE KEY BOARD, COMPLETE | |
| * 2 | 3-009-074-01 | HOLDER (LCD) | |
| 3 | 1-762-857-11 | SWITCH, RUBBER KEY | |
| 4 | 3-008-312-01 | BUTTON (FUNCTION) | |
| 5 | 3-007-496-01 | TERMINAL (CHARGE:BASE) | |
| 6 | 3-007-567-01 | SPACER (CHARGE TERMINAL) | |
| 7 | 3-008-421-01 | LENS (LED: ANSWER) | |
| 8 | 3-008-420-01 | LENS (LED) | |
| 9 | 3-008-419-01 | CABINET (UPPER), BASE | |
| 10 | 3-009-073-01 | WINDOW (LCD) | |
| 11 | 3-007-262-01 | HOOK | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 12 | A-3672-195-A | DSP BOARD, COMPLETE | |
| 13 | 1-473-932-11 | RF UNIT (BASE) | |
| 14 | 3-007-568-01 | PLATE, CONTACT | |
| 15 | 1-777-940-11 | WIRE (FLAT TYPE) (8 CORE) | |
| * 16 | A-3672-194-A | BASE MAIN BOARD, COMPLETE | |
| 17 | 3-008-416-01 | CABINET (LOWER), BASE | |
| 18 | 3-383-270-01 | FOOT, RUBBER | |
| 19 | 3-011-996-01 | CUSHION (LCD) | |
| AT301 | 1-501-889-11 | ANTENNA | |
| DP301 | 1-801-584-11 | DISPLAY PANEL, LIQUID CRYSTAL | |
| SP301 | 1-505-530-11 | SPEAKER | |

## 7-2. HANDSET SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 3-007-329-21 | CABINET (FRONT), HAND | |
| 52 | 3-007-497-01 | SPACER (SPEAKER) | |
| 53 | 3-007-326-01 | HOLDER (SPEAKER) | |
| * 54 | A-3672-193-A | HAND MAIN BOARD, COMPLETE | |
| 55 | 1-473-933-11 | RF UNIT (HAND) | |
| 56 | 3-007-324-21 | CABINET (REAR), HAND | |
| 57 | 3-954-192-01 | LABEL (A), NI-CD RECYCLE | |
| 58 | 3-007-325-01 | LID, BATTERY CASE | |
| 59 | 3-908-737-01 | CUSHION | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 60 | 3-007-498-01 | TERMINAL (CHARGE:L) | |
| 61 | 3-007-499-01 | TERMINAL (CHARGE:R) | |
| 62 | 3-007-328-01 | BUTTON (12 KEY) | |
| 63 | 1-762-858-11 | SWITCH, RUBBER KEY | |
| 64 | 3-007-500-01 | HOLDER (MICROPHONE) | |
| 65 | 3-007-327-01 | KNOB (SLIDE) | |
| AT601 | 1-501-869-11 | ANTENNA, HELICAL | |
| SP701 | 1-505-477-11 | SPEAKER (2.1cm) | |

# SECTION 8
# ELECTRICAL PARTS LIST

**BASE KEY** **BASE MAIN**

NOTE :
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A.... , uPA.... : μ PA....
  uPB.... : μ PB.... , uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-3672-196-A | BASE KEY BOARD, COMPLETE | | | |
| | | ********** | | | |
| * | 3-009-074-01 | HOLDER (LCD) | | | |
| | | < CAPACITOR > | | | |
| C301 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C302 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| | | < DIODE > | | | |
| D301 | 8-719-987-10 | LED VR1102W (CHARGE) | | | |
| D302 | 8-719-987-10 | LED VR1102W (ANSWER) | | | |
| D303 | 8-719-987-09 | LED PG1102W (LINE) | | | |
| D304 | 8-719-987-09 | LED PG1102W (POWER) | | | |
| | | < DISPLAY PANEL > | | | |
| DP301 | 1-801-584-11 | DISPLAY PANEL, LIQUID CRYSTAL | | | |
| | | < FILTER > | | | |
| FT301 | 1-579-216-11 | VIBRATOR, CERAMIC (4.0MHz) | | | |
| | | < IC > | | | |
| IC301 | 8-759-447-92 | IC MB89181PF-G-153-BND | | | |
| IC302 | 8-759-443-72 | IC RH5VL43AA-T1 | | | |
| | | < CONNECTOR > | | | |
| J301 | 1-779-049-11 | CONNECTOR, FFC/FPC | | | |
| J302 | 1-573-754-11 | CONNECTOR | | | |
| | | < RESISTOR > | | | |
| R301 | 1-216-103-00 | METAL CHIP | 180K | 5% | 1/10W |
| R302 | 1-216-103-00 | METAL CHIP | 180K | 5% | 1/10W |
| R303 | 1-216-103-00 | METAL CHIP | 180K | 5% | 1/10W |
| R304 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R305 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R306 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R307 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R308 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R309 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R310 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R311 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R312 | 1-216-047-00 | METAL CHIP | 820 | 5% | 1/10W |
| R313 | 1-216-047-00 | METAL CHIP | 820 | 5% | 1/10W |
| R314 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R315 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R316 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R317 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| ********** | | | | | |
| * | A-3672-194-A | BASE MAIN BOARD, COMPLETE | | | |
| | | ********** | | | |
| | 3-007-568-01 | PLATE, CONTACT | | | |
| | | < CAPACITOR > | | | |
| C4 | 1-163-227-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C6 | 1-163-227-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C7 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V |
| C8 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C9 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V |
| C11 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C13 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C17 | 1-164-345-11 | CERAMIC CHIP | 0.082uF | 10% | 25V |
| C15 | 1-161-055-00 | CERAMIC | 0.022uF | 10% | 50V |
| C16 | 1-130-798-00 | FILM | 1uF | 10% | 250V |
| C17 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C18 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C19 | 1-163-239-11 | CERAMIC CHIP | 33PF | 5% | 50V |
| C20 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C21 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C22 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C23 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C24 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C25 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C26 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C27 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C28 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C29 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C30 | 1-163-263-11 | CERAMIC CHIP | 330PF | 5% | 50V |
| C31 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C32 | 1-102-038-00 | CERAMIC | 0.001uF | | |
| C33 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C34 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C35 | 1-163-253-11 | CERAMIC CHIP | 120PF | 5% | 50V |
| C36 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C37 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C38 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C39 | 1-163-011-11 | CERAMIC CHIP | 0.0015uF | 10% | 50V |
| C40 | 1-163-131-00 | CERAMIC CHIP | 390PF | 5% | 50V |
| C41 | 1-104-664-11 | ELECT | 47uF | 20% | 25V |
| C42 | 1-124-478-11 | ELECT | 100uF | 20% | 25V |
| C43 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C44 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C45 | 1-163-137-00 | CERAMIC CHIP | 680PF | 5% | 50V |
| C46 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C47 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C48 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C49 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C52 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C53 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C54 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C55 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C56 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C57 | 1-104-664-11 | ELECT | 47uF | 20% | 25V |
| C58 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C59 | 1-163-037-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C60 | 1-104-664-11 | ELECT | 47uF | 20% | 25V |
| C61 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C62 | 1-163-023-00 | CERAMIC CHIP | 0.015uF | 5% | 50V |
| C63 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C64 | 1-124-563-11 | ELECT | 2200uF | 20% | 25V |
| C65 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C66 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C67 | 1-124-120-11 | ELECT | 220uF | 20% | 25V |
| C68 | 1-104-664-11 | ELECT | 47uF | 20% | 25V |
| C69 | 1-126-941-11 | ELECT | 470uF | 20% | 16V |
| C70 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C71 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C72 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C73 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C74 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C75 | 1-125-486-11 | DOUBLE LAYERS | 0.22F | | 5.5V |
| C76 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C77 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C78 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C79 | 1-162-638-11 | CERAMIC CHIP | 1uF | | 16V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C80 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C81 | 1-124-120-11 | ELECT | 220uF | 20% | 25V |
| C82 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C83 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C84 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C85 | 1-164-232-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C86 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C87 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C88 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C89 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 10% | 50V |
| C90 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |

< DIODE >

| | | |
|---|---|---|
| D2 | 8-719-994-73 | DIODE HZ7C3 |
| D4 | 8-719-800-76 | DIODE 1SS226 |
| D5 | 8-719-911-19 | DIODE 1SS119 |
| D6 | 8-719-911-19 | DIODE 1SS119 |
| D7 | 8-719-911-19 | DIODE 1SS119 |
| D8 | 8-719-980-45 | DIODE HZ33CPTNTK |
| D9 | 8-719-911-19 | DIODE 1SS119 |
| D11 | 8-719-911-19 | DIODE 1SS119 |
| D12 | 8-719-911-19 | DIODE 1SS119 |
| D13 | 8-719-911-19 | DIODE 1SS119 |
| D14 | 8-719-800-76 | DIODE 1SS226 |
| D15 | 8-719-109-89 | DIODE RD5.6ESB2 |
| D16 | 8-719-017-42 | DIODE HSM88WA |
| D17 | 8-719-109-89 | DIODE RD5.6ESB2 |
| D18 | 8-719-911-19 | DIODE 1SS119 |
| D19 | 8-719-911-19 | DIODE 1SS119 |
| D20 | 8-719-911-19 | DIODE 1SS119 |
| D21 | 8-719-994-73 | DIODE HZ7C3 |

< IC >

| | | |
|---|---|---|
| IC1 | 8-759-442-29 | IC MBCG24942-6195PF-G-BND |
| IC2 | 8-759-300-71 | IC HD14053BFP |
| IC3 | 8-759-635-21 | IC M5223FP |
| IC4 | 8-759-442-51 | IC MSM7540GS-KR1 |
| IC5 | 8-759-504-03 | IC PC817CD |
| IC6 | 8-759-242-70 | IC TC7WU04F |
| IC7 | 8-759-635-21 | IC M5223FP |
| IC8 | 8-759-504-03 | IC PC817CD |
| IC9 | 8-759-700-50 | IC NJM386M |
| IC10 | 8-759-256-65 | IC TK11232M |
| IC11 | 8-759-448-45 | IC uPD75117HGC-038-AB8 |
| IC12 | 8-759-087-73 | IC S-80745AN-D9 |
| IC13 | 8-759-087-73 | IC S-80745AN-D9 |

< CONNECTOR >

| | | |
|---|---|---|
| J2 | 1-764-398-11 | CONNECTOR 9P |
| J3 | 1-779-049-11 | CONNECTOR, FFC/FPC |
| J5 | 1-569-516-11 | PIN, CONNECTOR 18P |

# BASE MAIN

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < JACK > | | | |
| J1 | 1-766-250-21 | JACK, MODULAR (2C) 6P (LINE) | | | |
| J4 | 1-580-727-11 | JACK (DC IN 9V) | | | |
| | | < COIL > | | | |
| L1 | 1-410-517-11 | INDUCTOR | 47uH | | |
| | | < TRANSISTOR > | | | |
| Q2 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q3 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q4 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q5 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q6 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | |
| Q7 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q8 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q9 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q11 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q12 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q13 | 8-760-345-10 | TRANSISTOR | 2SC1474 | | |
| Q14 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q15 | 8-760-345-10 | TRANSISTOR | 2SC1474 | | |
| Q16 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q17 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q18 | 8-760-345-10 | TRANSISTOR | 2SC1474 | | |
| Q19 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| Q20 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | |
| | | < RESISTOR > | | | |
| R1 | 1-216-049-11 | METAL CHIP | 1K | 5% | 1/10W |
| R2 | 1-216-049-11 | METAL CHIP | 1K | 5% | 1/10W |
| R3 | 1-216-049-11 | METAL CHIP | 1K | 5% | 1/10W |
| R4 | 1-216-049-11 | METAL CHIP | 1K | 5% | 1/10W |
| R5 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R12 | 1-216-107-00 | METAL CHIP | 270K | 5% | 1/10W |
| R13 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R14 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R15 | 1-216-091-00 | METAL CHIP | 56K | 5% | 1/10W |
| R16 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R18 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R19 | 1-216-041-11 | METAL GLAZE | 470 | 5% | 1/10W |
| R21 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W |
| R22 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R23 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R24 | 1-216-093-11 | METAL GLAZE | 68K | 5% | 1/10W |
| R25 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R26 | 1-215-864-00 | METAL OXIDE | 150 | 5% | 1W |
| R27 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R28 | 1-216-111-00 | METAL CHIP | 390K | 5% | 1/10W |
| R29 | 1-216-115-00 | METAL CHIP | 560K | 5% | 1/10W |
| R31 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R32 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R33 | 1-216-109-00 | METAL CHIP | 330K | 5% | 1/10W |
| R34 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W |
| R35 | 1-216-111-00 | METAL CHIP | 390K | 5% | 1/10W |
| R36 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R37 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R38 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R39 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R41 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R42 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R43 | 1-216-186-00 | METAL GLAZE | 330 | 5% | 1/8W |
| R44 | 1-216-129-00 | METAL CHIP | 2.2M | 5% | 1/10W |
| R45 | 1-249-489-11 | CARBON | 22K | 5% | 1/2W |
| R46 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R47 | 1-215-869-11 | METAL OXIDE | 1K | 5% | 1W |
| R48 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R49 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R51 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R52 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R54 | 1-216-093-11 | METAL GLAZE | 68K | 5% | 1/10W |
| R55 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R57 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R58 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R59 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R60 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R61 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R62 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R63 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R64 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R65 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R66 | 1-216-109-00 | METAL CHIP | 330K | 5% | 1/10W |
| R67 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R68 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R69 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R71 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W |
| R72 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R73 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W |
| R74 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R75 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R76 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R77 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R79 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R81 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R82 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R83 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R84 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R85 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R86 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R87 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R88 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R89 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R90 | 1-216-093-11 | METAL GLAZE | 68K | 5% | 1/10W |
| R91 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R92 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R93 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R94 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R95 | 1-216-117-00 | METAL CHIP | 680K | 5% | 1/10W |
| R96 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W |
| R97 | 1-216-115-00 | METAL CHIP | 560K | 5% | 1/10W |
| R98 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W |
| R99 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W |
| R101 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R102 | 1-216-059-00 | METAL CHIP | 560 | 5% | 1/10W |
| R103 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R104 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R105 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R106 | 1-216-093-11 | METAL CHIP | 68K | 5% | 1/10W |
| R107 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R108 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R109 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R110 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R111 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R112 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R113 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R114 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R115 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R116 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R117 | 1-216-129-00 | METAL CHIP | 2.2M | 5% | 1/10W |
| R118 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R119 | 1-216-009-00 | METAL CHIP | 22 | 5% | 1/10W |
| R120 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R121 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W |
| R122 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R123 | 1-216-095-00 | METAL CHIP | 82K | 5% | 1/10W |
| R124 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R125 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R126 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R127 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R128 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R129 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R130 | 1-216-129-00 | METAL CHIP | 2.2M | 5% | 1/10W |
| R136 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R137 | 1-216-150-00 | METAL GLAZE | 10 | 5% | 1/8W |
| R138 | 1-216-150-00 | METAL GLAZE | 10 | 5% | 1/8W |
| R139 | 1-216-150-00 | METAL GLAZE | 10 | 5% | 1/8W |
| R140 | 1-216-150-00 | METAL GLAZE | 10 | 5% | 1/8W |
| R141 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R142 | 1-215-861-00 | METAL OXIDE | 47 | 5% | 1W F |
| R143 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R144 | 1-216-041-11 | METAL GLAZE | 470 | 5% | 1/10W |
| R145 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R146 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R147 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < RELAY > | | | |
| RL1 | 1-755-194-11 | RELAY | | | |
| | | < SWITCH > | | | |
| S1 | 1-692-955-11 | SWITCH, SLIDE (1-1-2) (DIAL MODE) | | | |
| S2 | 1-762-257-11 | SWITCH, SLIDE (AUDIBLE INDICATOR) | | | |
| | | < TRANSFORMER > | | | |
| T1 | 1-426-754-11 | TRANSFORMER, LF | | | |
| | | < VIBRATOR > | | | |
| X1 | 1-767-411-11 | VIBRATOR, CRYSTAL (4.194304MHz) | | | |
| X2 | 1-767-321-11 | VIBRATOR, CRYSTAL (10.368MHz) | | | |
| ********** | | | | | |
| * | A-3672-195-A | DSP BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C401 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C402 | 1-163-227-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C403 | 1-163-227-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C404 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C405 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C406 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C407 | 1-163-023-00 | CERAMIC CHIP | 0.015uF | 5% | 50V |
| C408 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C410 | 1-163-121-00 | CERAMIC CHIP | 150PF | 5% | 50V |
| C411 | 1-163-011-11 | CERAMIC CHIP | 0.0015uF | 10% | 50V |
| C415 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C417 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C418 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C419 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C420 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C421 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C422 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V |
| C423 | 1-163-205-00 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| | | < IC > | | | |
| IC401 | 8-759-452-48 | IC KM29N040T-UD391 | | | |
| IC402 | 8-759-448-46 | IC D6471A11AQC | | | |
| IC403 | 8-759-452-49 | IC MC145480DWR2 | | | |
| | | < CONNECTOR > | | | |
| * J401 | 1-779-052-11 | PIN, CONNECTOR 18P | | | |
| | | < COIL > | | | |
| L401 | 1-410-375-11 | INDUCTOR CHIP 3.3uH | | | |

# DSP HAND MAIN

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < RESISTOR > | | | |
| R401 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R402 | 1-216-089-00 | METAL CHIP | 47K | 5% | 1/10W |
| R403 | 1-216-121-00 | METAL CHIP | 1M | 5% | 1/10W |
| R405 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R406 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R407 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R408 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R415 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R416 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R417 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R418 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R419 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R420 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R421 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R422 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R423 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R424 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R425 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R426 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R427 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R428 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R430 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R431 | 1-216-049-11 | METAL GLAZE | 1K | 5% | 1/10W |
| R432 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R433 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R434 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| | | < VIBRATOR > | | | |
| X401 | 1-767-407-11 | VIBRATOR, CRYSTAL (36.864MHz) | | | |
| ********** | | | | | |
| * | A-3672-193-A | HAND MAIN BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C501 | 1-162-928-11 | CERAMIC CHIP | 120PF | 5% | 50V |
| C502 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C505 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C506 | 1-162-958-11 | CERAMIC CHIP | 270PF | 5% | 50V |
| C507 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C508 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C509 | 1-126-204-11 | ELECT CHIP | 47uF | 20% | 16V |
| C510 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C511 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C512 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C513 | 1-162-957-11 | CERAMIC CHIP | 220PF | 5% | 50V |
| C515 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C516 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C517 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C518 | 1-164-217-11 | CERAMIC CHIP | 150PF | 5% | 50V |
| C519 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C520 | 1-135-211-11 | TANTAL. CHIP | 6.8uF | 20% | 6.3V |
| C521 | 1-164-222-11 | CERAMIC CHIP | 0.22uF | | 25V |
| C522 | 1-162-921-11 | CERAMIC CHIP | 33PF | 5% | 50V |
| C523 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C524 | 1-135-211-11 | TANTAL. CHIP | 6.8uF | 20% | 6.3V |
| C525 | 1-162-921-11 | CERAMIC CHIP | 33PF | 5% | 50V |
| C526 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C527 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C528 | 1-162-921-11 | CERAMIC CHIP | 33PF | 5% | 50V |
| C529 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C530 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C531 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C532 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C533 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C534 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C535 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C536 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C537 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C539 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C540 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C541 | 1-165-325-11 | CERAMIC CHIP | 680PF | 2% | 50V |
| C542 | 1-135-177-21 | TANTALUM CHIP | 1uF | 20% | 20V |
| C543 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C544 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C545 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C546 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| | | < DIODE > | | | |
| D501 | 8-719-987-09 | LED PG1102W (TALK) | | | |
| D502 | 8-719-987-10 | LED VR1102W (BATT) | | | |
| D503 | 8-719-976-19 | DIODE RLS-4148 | | | |
| D504 | 8-719-017-42 | DIODE HSM88WA | | | |
| D505 | 8-719-976-19 | DIODE RLS-4148 | | | |
| D506 | 8-719-046-60 | DIODE HZK6C | | | |
| D508 | 8-719-800-76 | DIODE 1SS226 | | | |
| D509 | 8-719-800-76 | DIODE 1SS226 | | | |
| | | < IC > | | | |
| IC501 | 8-759-447-93 | IC MB89174APF-G-155-BND | | | |
| IC502 | 8-759-442-29 | IC MBCG24942-6195PF-G-BND | | | |
| IC503 | 8-759-442-50 | IC MSM7540LGS-KR1 | | | |
| IC504 | 8-759-256-65 | IC TK11232M | | | |
| IC505 | 8-759-431-93 | IC RH5VL33AA-T1 | | | |
| IC506 | 8-759-096-23 | IC S-80728AN-DR-T1 | | | |
| IC507 | 8-759-242-70 | IC TC7WU04F | | | |
| IC508 | 8-759-379-96 | IC RH5RE32AA-T1 | | | |
| | | < CONNECTOR> | | | |
| J501 | 1-764-398-11 | CONNECTOR 9P | | | |
| * J502 | 1-565-135-11 | PIN, CONNECTOR (STRAIGHT) 2P | | | |
| J503 | 1-573-753-11 | CONNECTOR | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < MICROPHONE > | | | |
| MC501 | 1-542-118-41 | MICROPHONE, ELECTRET CONDENSER | | | |
| | | < TRANSISTOR > | | | |
| Q502 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q503 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q504 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q505 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q506 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q507 | 8-729-216-22 | TRANSISTOR 2SA1162-G | | | |
| Q508 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q509 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q510 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| Q511 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | | | |
| | | < RESISTOR > | | | |
| R501 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R502 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R505 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R507 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R511 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R512 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R513 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/16W |
| R514 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W |
| R515 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R516 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R517 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R518 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R519 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R520 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R521 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R522 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R523 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R525 | 1-216-850-11 | METAL CHIP | 270K | 5% | 1/16W |
| R526 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R527 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R528 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R529 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R530 | 1-216-856-11 | METAL CHIP | 820K | 5% | 1/16W |
| R531 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R532 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R533 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R534 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R535 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R536 | 1-216-816-11 | METAL CHIP | 390 | 5% | 1/16W |
| R537 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R538 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R539 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R540 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R541 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R542 | 1-216-822-11 | METAL CHIP | 1.2K | 5% | 1/16W |
| R543 | 1-216-812-11 | METAL CHIP | 180 | 5% | 1/16W |
| R544 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R545 | 1-216-846-11 | METAL CHIP | 120K | 5% | 1/16W |
| R546 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W |
| R547 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R548 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R549 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R550 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R551 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R552 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R553 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R554 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R555 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R556 | 1-216-846-11 | METAL CHIP | 120K | 5% | 1/16W |
| R557 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R558 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R559 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R561 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R564 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R565 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R566 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R567 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R568 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R569 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R570 | 1-216-826-11 | METAL CHIP | 2.7K | 5% | 1/16W |
| R571 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R572 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R573 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| | | < SWITCH > | | | |
| S501 | 1-571-377-11 | SWITCH, SLIDE (BATT SAVE/RING ON) | | | |
| | | < VIBRATOR > | | | |
| X501 | 1-760-352-11 | VIBRATOR, CRYSTAL (4.192MHz) | | | |
| X502 | 1-767-321-11 | VIBRATOR, CRYSTAL (10.368MHz) | | | |
| | | < BUZZER > | | | |
| Y501 | 1-529-085-11 | BUZZER | | | |

**********

MISCELLANEOUS

**********

| | | |
|---|---|---|
| 3 | 1-762-857-11 | SWITCH, RUBBER KEY |
| 13 | 1-473-932-11 | RF UNIT (BASE) |
| 15 | 1-777-940-11 | WIRE (FLAT TYPE) (8 CORE) |
| 55 | 1-473-933-11 | RF UNIT (HAND) |
| 63 | 1-762-858-11 | SWITCH, RUBBER KEY |
| AT301 | 1-501-889-11 | ANTENNA |
| AT601 | 1-501-869-11 | ANTENNA, HELICAL |
| DP301 | 1-801-584-11 | DISPLAY PANEL, LIQUID CRYSTAL |
| SP301 | 1-505-530-11 | SPEAKER |
| SP701 | 1-505-477-11 | SPEAKER (2.1cm) |

**********

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | ACCESSORIES & PACKING MATERIALS | |
| | | ********** | |
| ⚠ | 1-466-834-11 | ADAPTOR, AC (AC-T42) | |
| | 1-528-489-11 | BATTERY PACK (BP-T18) | |
| | 1-696-666-11 | CORD, TEL (TEL LINE) (185cm) | |
| | 1-696-667-11 | CORD, TEL (TEL LINE) (23cm) | |
| | 3-007-265-01 | CLIP, BELT | |
| | 3-007-791-11 | CARD, REMOTE CONTROL | |
| | 3-395-611-11 | WALL MOUNT | |
| | 3-858-439-11 | MANUAL, INSTRUCTION (ENGLISH) | |
| | 3-858-440-11 | GUIDE, QUICK START | |
| | 3-912-237-01 | LABEL (MEMORY) | |
| | 3-954-192-01 | LABEL (A), NI-CD RECYCLE | |
| | 7-621-849-10 | SCREW,WOOD +R 3.1X13 | |

**********

**********

**HARDWARE LIST**

**********

| | | | |
|---|---|---|---|
| #1 | 7-685-134-19 | SCREW +BTP 2.6X8 TYPE2 N-S | |
| #2 | 7-685-133-19 | SCREW +BTP 2.6X6 TYPE2 N-S | |
| #3 | 7-685-139-29 | SCREW +P 2.6X20 TYPE2 | |
| #4 | 7-682-650-09 | SCREW +PS 3X12 | |
| #5 | 7-685-136-19 | SCREW +BTP 2.6X12 TYPE2 N-S | |
| #6 | 7-685-138-19 | SCREW +BTP 2.6X16 TYPE2 N-S | |
| #7 | 7-685-135-19 | SCREW +BTP 2.6X10 TYPE2 N-S | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-923-940-11

**Sony Corporation**
**Personal & Mobile Communication Company**

**English**
96J0212-1
Printed in Japan
© 1996.10
**Published by Quality Assurance Dept.**